June 1961

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Survey of Machine Accounting Salaries

EDP in Russia

Today's Crisis in Machine Accounting

NMAA Meets i

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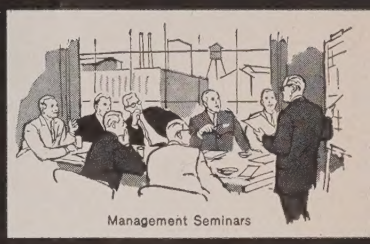

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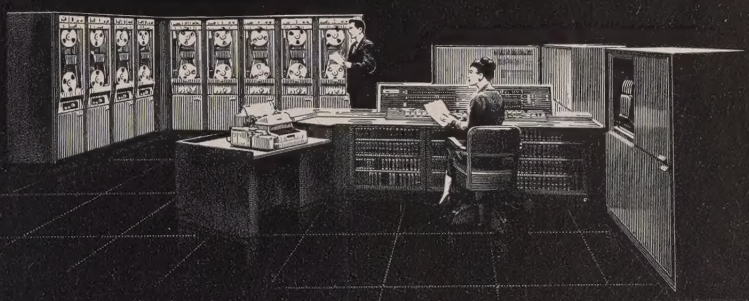

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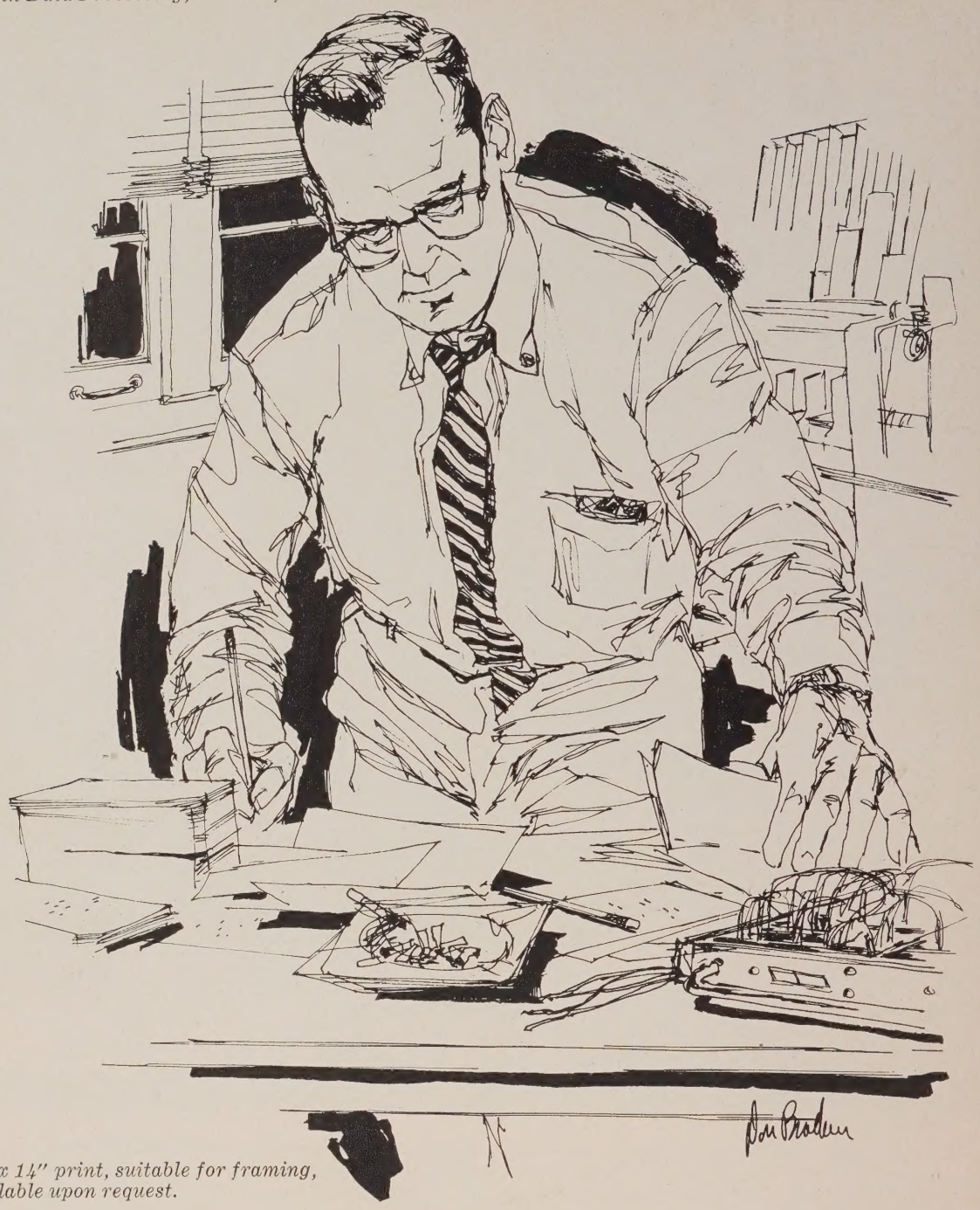

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and
BUSINESS AUTOMATION

June, 1961
Vol. 5, No. 6

New ideas, developments, applications, results, and the human impact of business automation in commerce, industry and government.

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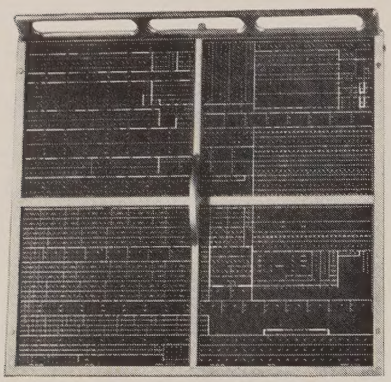

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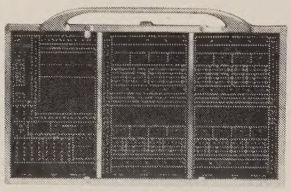

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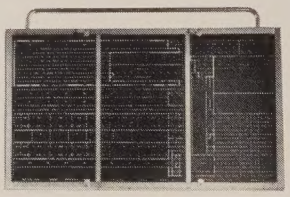

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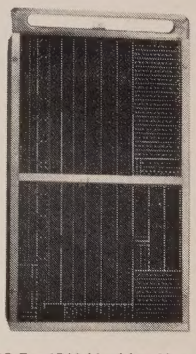

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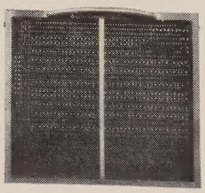

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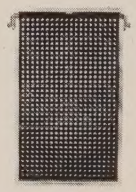

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Scanning the Issue

WHETHER receiving or paying, you are bound to be interested in salaries. Are yours too low or too high? What are other companies doing? What is a job really worth? The second machine accounting salary survey has just been completed by the Research Bureau of Management and BUSINESS AUTOMATION, the results of which are published in this issue, **"Machine Accounting Salaries Surveyed For 500 Firms, 25,000 Employes."** Participating companies are to be congratulated for helping to make this the most comprehensive report on salaries of data processing personnel ever compiled. Many of these firms revealed closely-guarded and confidential figures. Also surveyed for the first time and included in the report is an additional survey of machine accounting salaries in 50 top Canadian Companies. Page 18

After publishing a brief report on data processing in Russia (Dec., 1960, page 8) Management and BUSINESS AUTOMATION requested from the Soviet Embassy in Washington a full or at least more complete report on the subject. Surprisingly enough the Embassy outdid themselves by sending us an exclusive article by S. V. Saconov, vice chairman of the USSR Central Statistical Board. Departing from their usually tight-lipped reporting of activities inside Russia, the author discloses some apparently authentic and revealing facts. With the space race at its zenith and the Soviet's dubiously ahead, exponents of free enterprise can be justly proud of the undoubtable lead the United States holds in the area of practical business automation—and by Russian admission, as witnessed in **"Data Processing in the USSR."** Page 24

Editor Arnold E. Keller delivers a hard-hitting warning to managers of machine accounting in a special editorial feature, **"Crisis in Machine Accounting."** It is presented in conjunction with the National Machine Accountant's Assn. Conference being held in Toronto this month (see page 48). He accuses the machine accountants of resting on their technical laurels and ignoring proven tools of management, thereby endangering the effectiveness and respect of their position. Page 30

IDP techniques have been applied to advantage at St. Louis manufacturer, American Furnace Co., by improving their data communication. Mistakes, delays and personnel problems have been corrected by utilization of automatic typing and calculating, wire transmission, specialized forms and punched card tabulation and at the same time reducing the cost of order processing 43 percent. The complete story of how this was done is in **"Integrated Data System Nearly Doubles Order Output."** Page 32

RANDOM ACCESS

Information bits from the Editor's memory file

Coming—a computer car check

By 1965, and possibly sooner, an automatic, computer-controlled vehicle-checkout system will be available to car owners in metropolitan areas, according to A. P. Sorenson, Librascope division, General Precision, Inc. You'll be able to drive your car into a checking station for a maintenance test in the same way that you now drive in for a quick car wash. In less than 10 minutes, you'll receive a printed report describing the operating condition of the car and a list of the needed repairs. In addition, depending on the age of the car and the kind of driving you do, the report will tell how many more miles you can drive before you'll have to check a part that still works, but eventually will have to be repaired or replaced.

Such a system is already in operation at the Army's Frankford Arsenal in Philadelphia, where it makes a complete operational check of the M-48 tank engine and power transmission assembly in only 10 minutes, without having to remove or disassemble any major part of the tank. Heart of the checkout system is a modified Libratol-500 digital control computer produced by Librascope. Sensing devices, called transducers, monitor the performance of the vehicle power pack by measuring such things as spark plug insert temperatures, transmission oil pressures, valve and crankshaft positions, sprocket speeds, bearing vibrations, electrical current flow, etc.

All of the fixed values or parameters that indicate excellent system and component performance are stored on magnetic tape. The computer then can compare the transducer data with the stored information, determining the over-all condition of the engine and transmission assembly, pinpointing specific weaknesses or failures. As a final step, the computer findings are automatically printed on a result sheet telling mechanics exactly what's wrong with the vehicle, needed adjustments, and parts to be repaired or replaced.

The European Look

IBM Germany, subsidiary of IBM World Trade Corp., evidently has a hot item going in its "3000" accounting system, introduced last May at the Hanover Fair in Germany. The 3000 has an unusual card format which is half the size of the standard card, has round holes, but still has full 80-column capacity.

The complete system consists of three units: punch/verifier, sorter and accounting machine—all in miniature size. Card punching speed is 90 per minute, sorting speed is 460 cards p.m. The system rents for $340 per month. It is not available in the U. S.

Oh really!

Latest news from the Federal Patent Office is approval of an "automated" cradle that automatically rocks baby at varying speeds.

New ideas in punched

How your IBM supplies specialist helps you find ways to cut your punched card costs

How can a redesigned punched card improve your data processing efficiency?

Your IBM supplies specialist can tell you...and show you ways to redesign your cards to give you new data processing economies.

Your IBM supplies specialist is a man with extensive training in data processing supplies. That's why he is uniquely qualified to help you match the punched card to the job that you want to do.

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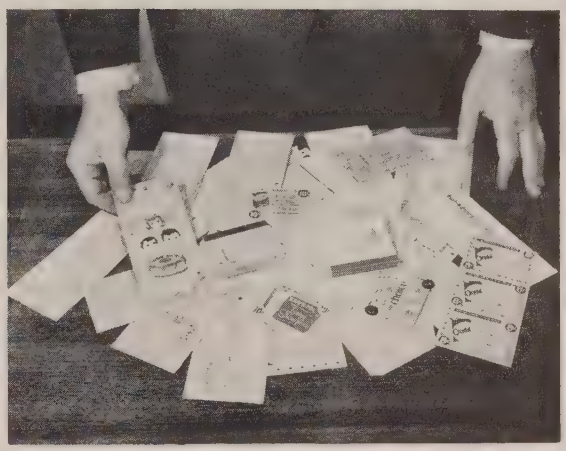
CUSTOMER METHODS MEN AND AN IBM SUPPLIES SPECIALIST (left) study a stock card form book and flow charts. By matching the card to the job, you get the most out of your data processing equipment.

THE RIGHT DESIGN. Thousands of stock, special, and continuous card forms, books and sets are on file at IBM Card Sample Centers. One of them might solve your problem.



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ters. These experts can help you to develop your own card ideas, to apply existing formats, or to create new, exclusive designs for solving your problems.

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FAST CARD DELIVERY—Whether your order is large or small, you get fast service from nationwide manufacturing facilities. IBM gives you prompt service, too, on card designs and card proofs.

Your IBM supplies specialist is the man with the complete punched card story. Let him help you with solutions to your card problems.

IBM® DATA PROCESSING

from the Publisher's Desk

IN THE welter of public announcements concerning the alleged "damaging" effects of automation on the nation's employment picture, a ray of common sense has been provided by a forward-thinking union official.

Edward Swayduck, president of Local 1 (New York City) of the Amalgamated Lithographers of America, is standing up to be counted as a firm believer in the value . . . yes, even the necessity . . . of automation in developing our economy. His statements are appearing in paid advertisements in several news magazines.

These statements are reprinted on page 78 of this issue in place of our regular editorial. They tell the same story that we have been telling since this publication first came into existence three years ago. It is a story based on unalterable economic facts. Unfortunately, too few in the labor movement and in governmental circles have been willing to accept these facts.

Our company has been in the publishing business for 57 years and has witnessed first-hand most of the advancements that Swayduck mentions. We can vouch first-hand automation in the printing industry has not only preserved jobs, but has created untold numbers of new job opportunities.

Hats off to Edward Swayduck, a responsible labor leader with the courage of his convictions.

Charles W. Gilbert

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Letters

Dear Sir:

I have just finished reading the February issue of Management and BUSINESS AUTOMATION and I feel as though I've looked in on what's going on all over the country.

I read many trade journals and business magazines but I find none of them so completely informative as yours, and I say this with all of the sincerity of one who is always left slightly bewildered that any one publication can consistently be so rewarding. I would like you to be aware of my personal gratitude and of my appreciation of your magazine.

I was very, very impressed with the roundtable discussion of "The Effects of Business Automation in the Sixties." I think this is the best presentation of this type I have ever read. You're doing a magnificent job with this magazine.

Douglas D. Hubbard
Supervisor of Machine Accounting
Public Utility Dist. No. 1
Cowlitz County, Washington

Dear Sir:

Just a few words of thanks for your reply to my letter asking questions about data processing and scientific management.

Incidentally, a leading scientific magazine was unable to supply any details to the same inquiry which I sent to you.

In case you are interested, I have come across some excellent articles on operations research and other items in some of the four volumes of "The World of Mathematics." Some of these writings are taken from the work of the original British scientists. I mention this in case you are interested and not yet acquainted with this fine work. I shall be following some of the leads that you have given me.

R. Markhan, M.D.
Central State Hospital of Virginia

Dear Sir:

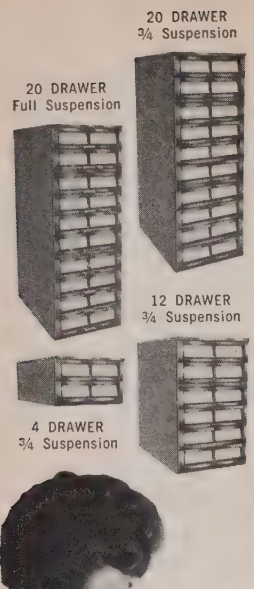
Your article "Automation—The Job Maker" in the April 1961 issue is well written. If all people would be more realistic in their analysis of this subject, there would be less confusion, doubt and mystery on "this thing" called automation.

Someone (and I am sorry that I cannot recall his name) once said, "Just look at what happened to those displaced by machines 20 and 30 years ago. Not only did they get new jobs, but the very machines which displaced them were a part and parcel of a steady trend which steadily increased their standard of living." Also, "The automobile age made things tough for buggy-whip makers. They groused until they found new and better jobs. It was not only the automobile that had been invented; occupations in undreamed-of variety sprang into being overnight."

The computer was conceived and created by man. It has no God-given qualities. It must be guided and directed by man in order to perform its work. Man is still master of the machine.

All man has to do is to stay smarter than a machine. We should work smarter—not harder.

C. A. Marquardt
Vice President-Planning and Research
State Farm Mutual Automobile Ins. Co.



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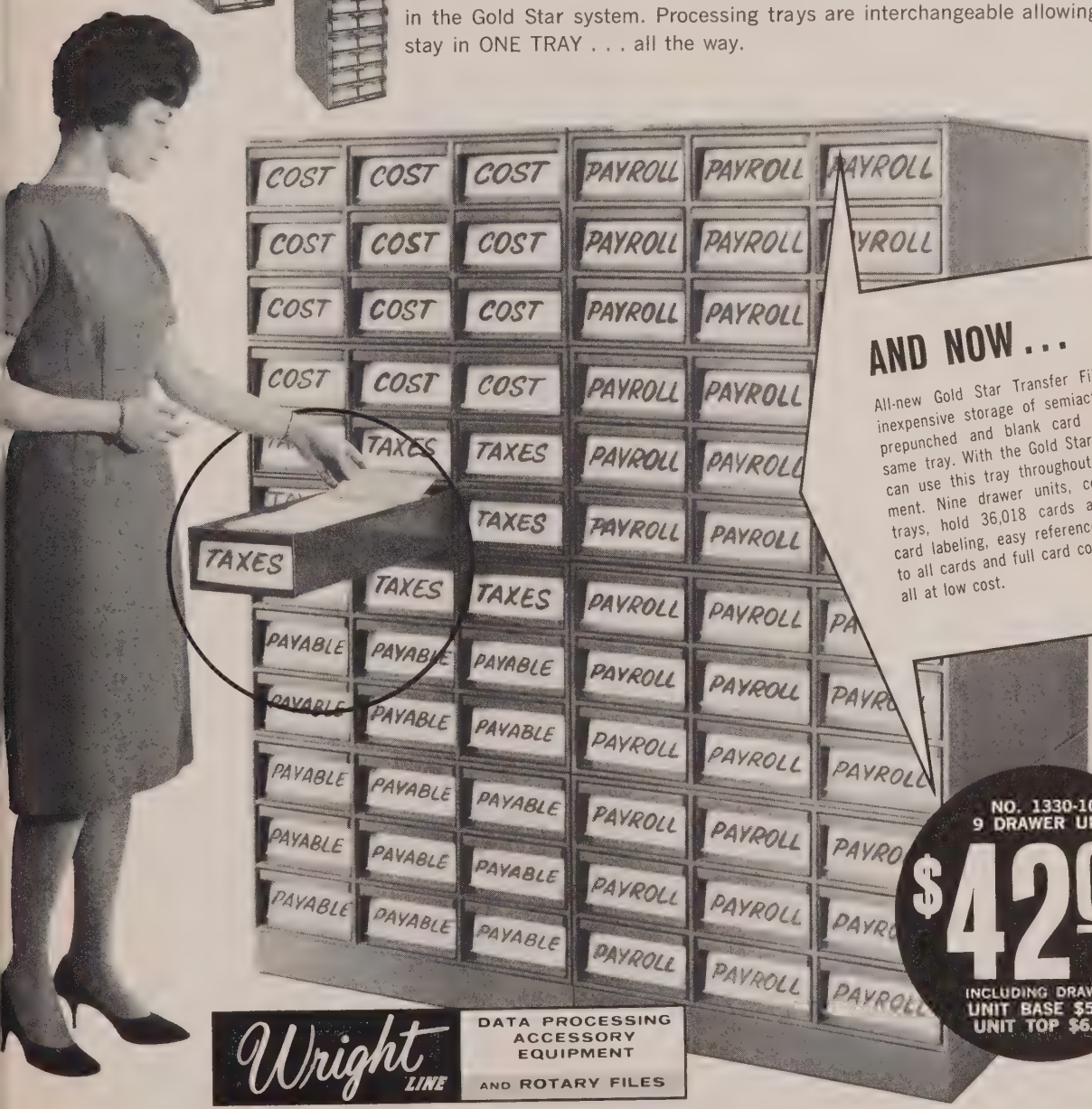

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Research Bureau Report . . .

Machine Accounting Salaries Surveyed For 500 Firms, 25,000 Employes

AVERAGE weekly salaries for managers of machine accounting operations range from $114 for installations under 1,600 points to $213 for those in the 25,000 point size and over, according to results of the nationwide survey of machine accounting salaries conducted by Management and BUSINESS AUTOMATION. (A point is equivalent to one dollar of monthly machine rental.)

The survey, which covered 25 positions common to most machine accounting installations (see page 22), was participated in by more than 500 firms, reporting for some 25,000 employes. A separate survey was conducted among 50 Canadian firms (see chart, page 20). Both surveys were directed by Philip H. Weber and Associates, Inc., a management consulting firm specializing in wage and salary administration.

Actual salaries paid to managers varies from $98 to $325, with the national average hitting $182. With only 50 percent of the firms reporting activity in this category, assistant managers range from $92 to $235 and an average of $157. Technical assistants to the manager have a national average of $132, with a low reported at $95 and a high at $208.

The "A" range

Depending on point size, tabulating supervisors range from $97 up to $153, the average being $135. Key punch supervisors have a low of $81 and a top of $119; average for the job is $106.

Only 20 percent of the firms reported salaries for the position of tabulating record control supervisor. Among them the salaries range from $67 to $211 and an average of $117. About the same number gave returns for the job of tabulating record control clerk-group leader, with their salaries running from a low of $55 to a high of $151, and an average of $93. A slightly higher percentage reported on the job of control clerk "A," the salary range being between $46 and $125 and the average, $83.

Returns on control clerks "B" and "C" were much heavier, about 75 percent of the firms listing wages for these positions. Both jobs have wide ranges, with clerk "B" running from $44 to $108 (an average of $65) and clerk "C" ranging from $41 to $91 (averaging at $56). The job of control clerk-trainee was reported in too few cases to warrant any salary interpretation.

Not without approval

The positions of coder and Teletype operator had heavy response. Coders have a salary range of $48 to $106, an average of $65; while Teletype operators range from $46 to $99, but average at $81. Data converting machine operator enjoyed a lesser response, with a salary low reported at $50 and a high at $122; the average is $81. The final position, office boy, was reported by a majority of firms and showed a low of $45, high of $85 and average of $57.

Of the five categories of tabulating machine operators, over 40 percent of the returns were concentrated in operator "B." The same was true of the key punch classification.

Average point size of the 500 installations is 7,725. Almost 50 percent (48.9) reported a computer in addition to conventional equipment. Of these, 76 percent indicated an IBM computer, 11 percent reported Remington Rand Univacs, and six percent listed a Burroughs. The remain-

Weekly Salaries of Key Jobs by Size (Monthly Dollar Rental) of Installation

Manager Machine Accounting

Tab Supervisor

Key Punch Supervisor

Statistics from Management and Business Automation Research Bureau

Survey of Weekly Salaries for Machine Accounting Personnel in

Cities Surveyed	Manager			Supervisor			Lead Operator			A Operator			B Operator			C Operator		
	Low	Av.	High	Low	Av.	High	Low	Av.	High	Low	Av.	High	Low	Av.	High	Low	Av.	High
Boston	$112	156	232	$ 88	121	183	$ 74	88	100	$ 54	86	111	$ 48	73	95	$ 55	69	81
Chicago	125	182	300	106	147	290	84	117	172	65	108	198	60	93	165	60	84	104
Cincinnati	115	163	240	115	123	130	90	103	116	78	94	104	70	82	101	58	65	75
Cleveland	127	172	210	104	142	189	96	129	169	55	93	115	62	89	130	56	65	73
Dallas	97	154	194	87	120	173	85	98	113	67	84	97	54	73	83	58	63	75
Denver	100	176	224	119	138	159	73	123	145	63	98	117	60	87	97	56	70	80
Detroit	162	196	230	104	134	181	83	119	154	85	108	134	55	94	122	75	90	107
Kansas City, Mo.	115	170	231	92	124	176	98	113	137	65	93	112	52	81	102	46	73	95
Los Angeles	175	219	300	110	138	219	98	116	149	75	102	130	80	88	106	61	73	78
Milwaukee	135	170	200	100	131	152	77	114	131	72	94	111	58	80	102	67	73	79
Minneapolis-St. Paul	102	152	242	75	115	160	89	104	126	66	92	120	53	74	108	60	71	82
San Francisco-Oakland	150	183	213	90	129	190	87	116	128	69	98	126	63	80	104	73	75	80
New Orleans	110	135	250	99	120	129	95	108	133	75	104	128	59	91	118	59	78	98
New York	105	175	325	91	129	192	86	109	133	70	90	134	62	81	127	60	73	90
Philadelphia	121	178	231	85	119	140	93	107	135	66	92	120	56	78	104	58	66	73
National Average	$ 97	182	325	$ 69	135	219	$ 65	113	168	$ 54	98	136	$ 48	85	122	$ 46	76	106
Canadian Average	$ 90	141	196	$ 82	107	150	$ 70	90	115	$ 61	79	129	$ 46	69	100	$ 35	61	81

ing percentages were divided among various manufacturers.

Of those installations which had placed orders for a computer, 88 percent indicated their preference for an IBM 1401. The other 12 percent were distributed among six computer makers.

The survey revealed that, in practically all cases, the machine accounting manager is responsible for the selection of equipment and supplies related to his operation. However, the survey indicated that the machine accounting manager's selection must be approved by a variety of company officials. Thirty percent listed the controller; 15 percent, the treasurer; 14 percent, a vice president; nine percent, the EDP manager; six percent, the office manager; and five percent, the company president. Four percent indicated committee-approved selections.

Of those installations having computers, 62 percent reported that the machine is under the supervision of the machine accounting manager, while 38 percent indicated separate supervision.

The average weekly salary of $182 for a manager of machine accounting indicates that this position trails that of a manager of computer operations by about 20 percent. The latter averaged $218 according to our June, 1960 survey.

The overtime exempt

Surprisingly, only 58 percent of the firms said that the machine accounting manager was promoted from within the company. The remainder said that the manager was hired from the outside.

In the case of tabulating machine operators, 75 percent of the respondents said they hired from the outside. This figure increased to 81 percent for key punch operators.

In answer to a question about hiring operators from commercial training institutes, 62 percent

Key Cities

ab Trainee			Supervisor Key Punch			Lead Key Punch			A Key Punch			B Key Punch			C Key Punch			Trainee Key Punch		
w	Av.	High	Low	Av.	High	Low	Av.	High	Low	Av.	High	Low	Av.	High	Low	Av.	High	Low	Av.	High
50	56	60	$ 62	104	154	$ 65	92	99	$ 58	74	93	$ 46	72	88	$ 44	58	56	$ 45	52	56
56	73	92	65	112	202	63	93	132	58	79	136	54	77	107	56	67	76	49	68	85
45	50	60	62	82	102	61	75	102	58	64	75	51	65	93	45	48	51	50	55	60
56	68	80	58	101	214	58	86	99	58	86	114	59	85	97	52	75	80	52	56	70
54	63	80	76	95	113	62	78	90	56	70	97	47	63	87	48	51	54	47	50	52
52	65	70	68	101	105	68	87	98	62	74	99	51	75	94	45	61	75	No Report		
No Report			86	112	164	75	94	111	75	84	100	58	79	109	57	69	81	No Report		
54	84	95	79	92	121	67	83	96	62	72	85	52	70	92	52	64	92	46	60	92
66	80	88	87	116	159	85	98	120	70	83	95	62	81	99	55	67	88	64	69	80
69	72	75	86	101	111	76	88	108	57	75	88	52	61	82	48	61	78	No Report		
54	63	80	60	83	121	63	77	104	55	68	99	48	63	78	51	58	69	46	50	59
70	71	78	80	98	119	69	91	117	70	90	99	64	79	93	58	66	75	58	68	70
45	65	86	72	110	145	88	103	126	66	88	108	52	58	65	48	52	59	No Report		
54	62	78	70	101	144	78	90	108	63	79	112	55	73	102	66	71	82	51	57	64
53	59	63	63	107	140	82	89	91	59	79	97	56	70	79	53	62	74	52	57	61
45	67	95	$ 60	106	202	$ 53	91	132	$ 50	80	111	$ 46	72	100	$ 44	64	92	$ 41	59	85
36	54	66	$ 59	81	111	$ 44	73	98	$ 30	60	76	$ 39	58	73	$ 39	51	59	$ 36	46	53

indicated that they have done so. Regarding ratings of the employes hired from these schools, the answers were: Excellent, nine percent; good, 64 percent; fair, 24 percent; and poor, three percent.

In answer to a question whether jobs are exempt from overtime pay, 89 percent of the managers were exempted, opposed to 62 percent of the tabulating supervisors. Only 25 percent of the key punch supervisors were listed as exempt. Of those in the tabulating machine operator-group leader class, 84 percent are non-exempt.

With the obvious exception of key punch operators, machine accounting continues to be a man's world. Only four women were reported in the role of manager. In the tabulating supervisor's job, the distaff side did a little better, the survey showing some eight percent in this position.

A question on educational requirements showed that 61 percent of the firms require a college education of the machine accounting manager. For the assistant manager, 54 percent listed a college degree as a requisite; only 23 percent for the role of tabulating supervisor.

The amount of training required for managers varies from one to nine years, with the majority of firms emphasizing an average of five years. For the job of assistant manager the requirements ranged from one to six years, with the emphasis also on the five year period of training. While a number of firms indicated five years of training for technicians the average was about three.

Their American counterpart

Two to five years is the common requirement for most tabulating supervisors, the emphasis being on three years. Most firms feel that two to three years is adequate for a group leader, while one to three years of training is indicated for the

Job Descriptions

MACHINE ACCOUNTING MANAGER—Under general supervision, directs the personnel of the Machine Accounting Department and manages the preparation of machine accounting transactions, statistics, and other data; produces statistical records and reports, payrolls and tabulations for various other purposes; directs the development of new or revised procedures; determines the feasibility of converting manual procedures to mechanical methods.

ASST. MACHINE ACCOUNTING MANAGER Under supervision of Machine Accounting Manager, assists in the preparation of punched card records of accounting transactions, statistics, and other data; produces accounting and statistical record and reports, payrolls and tabulations for various other purposes; assists in the development of machine procedures; assists in determining the feasibility of converting manual procedures to mechanical methods.

TECHNICAL ASSISTANT TO MACHINE ACCOUNTING MANAGER Under supervision, investigates, studies, develops and assists in installing machine accounting applications for new projects or for possible machine application for other departments. Wires boards for new or special variations of regular procedures. Instructs operators in technical phases of machine operation.

TABULATING SUPERVISOR—Under supervision of the Machine Accounting Manager, plans, schedules, supervises and directs tabulating machine activities involved in the preparation of reports, statements and records; maintains files and assigns personnel to carry out the above activities; coordinates work with other units.

TABULATING MACHINE OPERATOR — GROUP LEADER — Under direct supervision, assists in supervising the activities of a group engaged in operating tabulating equipment to prepare accounting and statistical reports; plans and wires control panels for complex operations; assists in planning the presentation of reports and in developing departmental procedures.

TABULATING MACHINE OPERATOR A—Under direct supervision, operates a variety of tabulating machines in connection with the preparation of accounting and statistical data; assists in the development of wiring diagrams for complex machine operations; wires and tests boards for all operations.

TABULATING MACHINE OPERATOR B—Under direct supervision, operates a variety of tabulating machines in connection with the preparation of accounting and statistical reports.

TABULATING MACHINE OPERATOR C- Under direct supervision, usually operates only one class of machine under continuous volume production. May assist higher level operators on other phases of work.

KEY PUNCH SUPERVISOR—Under supervision of the Machine Accounting Manager, plans, schedules, supervises and directs key punching and verifying activities involved in the preparation of tabulating cards; maintains the corresponding files; supervises assigned personnel to carry out the above activities.

KEY PUNCH OPERATOR — GROUP LEADER — Under direct supervision, assists in supervising a group engaged in operating alphabetic and/or numeric key punch machines in recording a variety of accounting and statistical data on punched cards; assists in the scheduling of key punch functions; instructs workers on procedures used to perform routing assignments; trains new employes.

KEY PUNCH OPERATOR A — Under direct supervision, operates alphabetic and/or numeric key punch machines in recording a variety of accounting and statistical data on punched cards; instructs workers on procedures used to perform routing assignments; assists in training new employes.

KEY PUNCH OPERATOR B — Under direct supervision, operates alphabetic and/or numeric key punch machines in recording a variety of accounting and statistical data on punched cards; verifies punched cards; performs related clerical duties.

KEY PUNCH OPERATOR C — Under direct supervision, usually performs only one type of key punching on a volume basis. May assist occasionally on other types of work.

TABULATING RECORD CONTROL SUPERVISOR Under supervision of the Machine Accounting Manager, plans, schedules, supervises and directs the control records activities involved in preparing records for keypunching and for delivery of reports after they are prepared. Maintains necessary files and records and supervises assigned personnel to carry out the above activities.

TABULATING RECORD CONTROL CLERK-GROUP LEADER Under direct supervision, assits in supervising the activities of a group engaged in maintaining and revising lists, control records, and files of basic punched cards used in the preparation of recurring records and reports by tabulating machine methods.

TABULATING RECORD CONTROL CLERK A Under direct supervision, maintains the various control records and files of basic punched cards used in the preparation of recurring records and reports by tabulating machine methods; may code new cards and lists according to prescribed code designations; performs related clerical and typing duties.

TABULATING RECORD CONTROL CLERK B Under direct supervision, revises various lists and files of basic punched cards used in the preparation of recurring records and reports by tabulating machine methods; prepares and types lists as required; performs related clerical and typing duties.

TABULATING RECORD CONTROL CLERK C Under direct supervision usually works on one activity only of the various control records. May assist higher level clerks on other activities.

"A" operator, the majority listing two years. Training required for a key punch supervisor ranges from one to five years.

Most firms reported that the established salary ranges are a result of job evaluation, rather than being set by surveys or some informal manner. This also is true, but to a lesser extent, in the case of actual salaries. Here, many companies indicated that salaries are based on a random or "informal" method. Others reported that salaries are based on personal education and experience of the employe. A majority of the respondents said that no additional incentive pay or bonus is paid to machine accounting personnel.

Canadian salaries are somewhat below the American range for all positions surveyed. Managers in Canada average $141 per week, compared to $182 for their American counterparts. Tabulating supervisors average $107, which is $25 less than the American rate, and key punch supervisors earn an average of $81, as opposed to $106 in the United States.

By their titles alone

The job descriptions used in the survey were prepared with several levels in each general group to enable large machine accounting departments to fit most, if not all, of their employes into the structure. While smaller departments do not have as many jobs or as many levels, in most cases they were able to classify their employes in the proper positions of the structure.

To enable survey participants to better match job contents with the job descriptions, they were asked to limit or qualify the statements for each level of classification by the following characteristics:

Supervisor—Usually in full charge of all activities of the particular section.

Lead—Usually considered as the assistant supervisor or has full technical knowledge of the activity, like a senior, but also has the supervisory duties of assigning work to others (including the seniors), instructing them and checking their work.

Senior—Usually competent to work at the highest level of all technical phases of the activity, working without supervision most of the time. May give some direction and guidance to lower level classifications.

A Operator—Usually competent to work alone in most phases and only requires some general direction for the balance of his activities.

B Operator—Usually fairly competent to work on several phases of activity with only general directions, but still needs some instruction and guidance for the other phases.

C Operator—Usually works on only one activity and is under very close direction, with his work carefully checked.

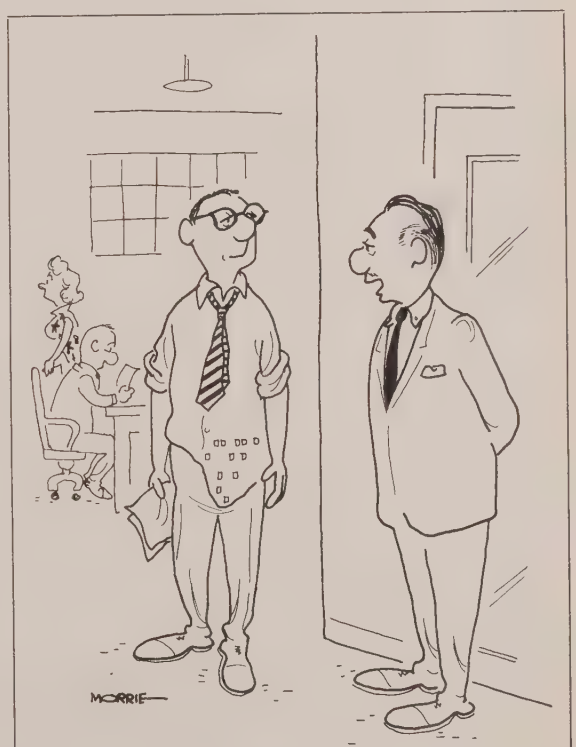
Trainee—Usually an employe who has had no previous experience.

Using these classification levels and descriptions to match jobs, the participating companies were able to determine rates of compensation for each position more accurately. The detailed list of job responsibilities and content guarantees far greater accuracy in survey results than can be obtained under a method which identifies jobs by their titles alone.

This is the third salary survey conducted for Management and BUSINESS AUTOMATION by Philip H. Weber and Associates. The first machine accounting salary survey was published in June 1959 and the second, the first nationwide survey of computer department salaries ever to be conducted, was published in June 1960.

Weber is one of the nation's top authorities on employe compensation plans. He has developed and administered programs for such companies as Olin Mathieson Chemical Corp., Lone Star Cement Corp., Corn Products Co., United Air Lines and Cleveland Electric Illuminating Co.

He authored the popular handbook "Determining Salaries For Computer Personnel," published last year by Management and BUSINESS AUTOMATION. ■



"You must be the new key punch trainee."

An exclusive report from Russia acknowledges a Soviet lag in development of business automation and unveils a plan to catch up.

Data Processing in the USSR

THE organization and planning of management, especially in regard to accounting and statistics, is playing a mounting role in the life of the U. S. S. R.

It is quite clear that one of the most important ways to improve the accounting and statistics operations is to automate these operations. Only by so doing can we obtain the extensive information essential for the planned guidance of our economy, to ensure further improvement, and to reduce both personnel and equipment costs.

In our country, we recently have made some headway in mechanized accounting and calculating work, but we definitely find it insufficient. At the beginning of 1960, the country's enterprises, offices and organizations had a total of 188,000 calculating machines, including 3,500 sets of punching machines—almost twice as many as in 1954. However, that is very little, if we take into account the tremendous scope of our national economy.

Even in the large enterprises where much has been done in the way of complex mechanization and automation of production, only some accounting jobs have been automated (figuring the payroll, take inventory, and the like). Farming and procuring organizations employ practically no mechanized accounting.

The output of mechanical accountants is far behind the growing requirements. Our industry is not as yet supplying the national economy with complex punched card digital computers which are widely used abroad. The sets of punching machines still lack tabulating and sorting machines, deciphering machines and punching computers. Prior to 1960, we hardly produced any keyboard automatic or semi-automatic computing machines. Nor has serial production yet started on electronic computers for accounting work and statistics.

The establishment of calculating machine stations in the system of statistical agencies marked an important phase in the development of mechanized accounting in the U. S. S. R. Between 1957 and 1959, a total of 164 calculating machine stations were set up under the central statistical boards of the union republics and the statistical

About This Article

This story on the mechanization of accounting and statistics in the USSR was authored by S. V. Saconov, vice chairman of the USSR Central Statistical Board. The story was released to Management and BUSINESS AUTOMATION by the Soviet Embassy in Washington, and while the editors obviously cannot vouch for its complete accuracy, nevertheless, they feel that the article provides an interesting and revealing insight into data processing operations within the Soviet Union—an activity about which little has been published.

The article is unique in several respects. For one, it contains a frank admission that the Soviets trail in the development of business automation. For another, it reveals that even an absolute dictatorship can become bogged down in bureaucracy—and paperwork.

It is quite evident from Saconov's report that the Russian government realizes the importance of business automation to its economy, and is moving fast to catch up in this field. This should furnish food for thought to those Americans who consistently view our own progress in this area with alarm.

All photos by Sovfoto

This picture, showing operators and mechanics being instructed in the Moscow Calculating Machine Station, emphasizes that data processing in the USSR is definitely a "woman's world."

departments of the regions, territories and autonomous republics.

Without these stations, the statistical agencies would not have been able to handle the accounting necessary to the re-organization of management in industry and construction. This centralized and mechanized summarization of statistics made it possible to present the necessary data to the leading central and local bodies, economic councils and planning committees quickly, and also made it possible to shift some 15,000 accountants to more productive jobs.

The cut at Yaroslavl

The statistical boards' calculating machine stations handle all the work entailed in collecting and verifying the accuracy of statistical reports from enterprises, construction sites, state farms, collective farms and procuring organizations. They also mechanize the summarization of these reports with other reports from the various regions, republics and the country as a whole. A two-way teletype communication system has been established between all calculating machine stations.

The biggest job yet done by these stations was the summarization of country-wide census returns in 1959. The ones under the regional, territorial and republican statistical boards punched and sorted out more than 210 million cards, while the Central Calculating Machine Station for census returns summarized the major census results, performing some 3.3 billion sorting operations and more than 6 billion calculations. This is our greatest machine accounting and statistical operation to date, both in volume and difficulty.

Other large jobs accomplished by the statistical boards' calculating machine stations include compilation of over-all results from the revaluation of basic funds in the U. S. S. R. national economy; summarization of the census returns in the housing fund; selective survey of wages and salaries undertaken in connection with wage adjustments; selective survey of the budgets of factory and office workers for a given period; registration of unestablished equipment; etc.

Apart from summarizing statistical returns and surveys, these machine calculating stations work

for enterprises and organizations on a contract basis, which accounts for about 50 percent of their work volume.

Mechanization of accounting enables appreciable cuts in our bookkeeping staffs. For example, since the establishment in 1947 of a calculating machine station at the First Moscow Ball-bearing Plant, gross output increased more than sevenfold and the number of workers almost doubled, whereas bookkeeping and planning personnel were reduced by 40 percent. Since the establishment in April 1952 of a calculating machine station at the Yaroslavl tire plant, gross output more than doubled and the number of employes increased 40 percent, while the bookkeeping and planning personnel was cut 22 percent.

Following the introduction of mechanized accounting at the enterprises of the Moscow Regional Economic Council, the number of accountants has declined nine percent in the last two years and the volume of production has increased 18 percent. In the whole of the national economy, the bookkeeping staffs in the past six years have been reduced by 52,000 people, with the number of factory and office workers increasing 30 percent and gross output of industry showing almost a two-fold rise.

Experiment at Marxstadt

The Soviet Government has mapped out a series of measures for further accounting, planning and engineering work. The plans provide for the construction of plants capable of producing some 100,000 numerical integrators, more than 100,000 calculating machines and more than 15,000 billing and bookkeeping machines. We also must develop capacities for the production of several thousand sets of punching machines.

The plans provide a change-over to output of keyboard machines as of 1963, which by the end of the seven-year plan, will account for 60 percent of over-all production and, in 1965, the end of the manufacture of digital machines altogether. Electronic computer attachments will be turned out for tabulators, thereby radically modernizing existing tabulating machines.

The plans also provide for the manufacture of a large quantity of punching calculators; reproducers; and sorting, listing and deciphering machines, which will increase the efficiency of our punching machines.

In the course of the seven-year plan, many quick-action electronic digital calculators of the Era type will be produced for accounting and sta-

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Another shot of the Moscow Central Calculati
Machine Station. Veteran machine accountants w

Operator sights test deck at sorter, which appear
to be duplicate of IBM sorting equipment.

ognize similarity of equipment to old IBM 285 and models, now virtually extinct.

Technicians check program on BESM-2 computer at Latvia's Stuchki State University in Riga.

Equipment in action at National Census Central Calculating Machine Station in Moscow. Girl at left appears to be operating key punch as a summary punch.

Continued from Page 26

tistical work, for planning, and for engineering calculations.

Large-scale research is being conducted with a view toward developing new models of electronic computers; projects for automatic centralized accounting from original information transmitted from a distance; and various means of mechanizing and automating primary accounting. It would be extremely desirable in this connection to design an inexpensive standard-type attachment for a variety of machines (typewriters, accounting machines and cash registers) which would produce a punched tape with initial data while in the process of drawing up documents and punching checks. This would enable us to sharply reduce the effort required for punching and to feed the initial data into the electronic machine more quickly.

Very interesting is the experimental work done in the German Democratic Republic where, at the Karl Marxstadt experimental electronic works, electronic mechanisms are made for attachment to ordinary keyboard models. The use of these attachments increases the productivity of the ordinary keyboard calculating machine two- or three-fold.

"Our difficulty — high quality"

Our difficulty in calculating machine production is to ensure the high quality of the machines and their different elements. Another difficulty stems from the fact that large-scale mechanization of accounting and calculating work entails substantial expansion of repair facilities. A government decision has provided for the establishment of 10 repair plants in various parts of the country for both capital and minor repairs. The output of spare parts for calculating machines, and especially for punching machines, will be increased sharply.

The Central Statistical Board (CSB) of the U. S. S. R., jointly with the economic councils, ministries and departments, has to provide all calculating machine stations with standard projects for mechanizing accounting between 1960 and 1962.

A number of ministries, economic councils and planning organizations already have started work on standard designs. Unfortunately, some organizations (the Ministry of Construction of the Russian Federation, the Ministry of Power Plant Construction, and the Ministry of Trade of the RSFSR) underrate importance of the undertaking.

We understand that in order to introduce modern calculating techniques to national economic accounting successfully, it is essential to work out a timely system of documentation for primary calculation and accounting which then can be fed into electronic computers and other modern calculating machines. The primary documents must be fully adapted to mechanized work, so that there is no need for them to be rewritten in intermediate registers. The primary calculation and accounting forms must be of a standard type, adaptable for use at other industrial enterprises.

Measures have been taken

The calculating machine stations of enterprises and construction sites are subject to joint control by the management of the enterprises which they serve and by their corresponding statistical agencies. The statistical agencies possess extensive rights in organizing the technology of calculating and statistical work, introducing modern calculating machines, establishing methods and schedules for doing the work and distributing it among the stations, and attaching to them enterprises which have no calculating machines of their own.

In Kharkov, Stalingrad, Moscow, Leningrad, the Tatar Autonomous Republic, Orenburg and in a number of other regions, measures have been taken to make full use of the mechanical accountants by mechanizing their own work and the work of neighboring enterprises. Of the 46 calculating machine stations in the Moscow region, 10 already had been reorganized into group stations by January 1960 and 14 more were to be reorganized during the following year. In addition, idle machinery was redistributed.

At the present time, there are several types of stations in operation: calculating machine stations, calculating machine bureaus under given enterprises and organizations, group calculating

Continued on Page 36

MOORE SYSTEM OF THE MONTH

"MOORE FORMS HELPED US AVOID A 49-WEEK PRODUCTION DELAY"

—says J. A. Gorgenson, System Man-of-the-Month and Skybolt Program Manager at Douglas Aircraft Company, Inc.

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THE SYSTEM: It is a computer-analyzed review of every detail of production. An Engineering Status Report is the key document, showing engineering management the prog-

ress of jobs. It includes—original estimate of man-hours, hours charged the previous week, total hours to date, estimated hours still to be expended. The statistics come through the group planner and are carded, together with stored constant data. The project planner sees the program-wide picture in the print-out.

He reads up-to-the-minute facts on hours, estimated vs. actual; worker performance; costs. With this control, forecasts can be made accurately, man-power can be assigned and, where needed, corrective action can be taken. The form is Moore's 4-part Speediflo—our control in print. We found the Moore man quite helpful, both in his understanding of data processing problems and his knowledge of forms constructions."

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Special Editorial

Crisis In Machine Accounting

By Arnold E. Keller

LACK of effective machine accounting management is a serious problem in most of the nation's 35,000 installations. Many are operating far below payoff efficiency. Overtime costs are excessive. The rate of personnel turnover is incredible. A common complaint from top management is that the installations have never produced the anticipated results.

These conditions constitute a strong indictment of the machine accounting profession. They clearly indicate that a good share of machine accountants have failed to accept or fulfill their managerial responsibilities. In short, the machine accounting manager has not been a good steward.

There is no doubt that the average machine accountant is a hard-working, dedicated individual, possessing a wealth of technical know-how. But technical talent, though necessary to a degree, is not the key requirement for an effective installation. Unfortunately, most machine accountants have been late to realize that technical ability is not the indispensable asset it was once thought to be. Technicians are available today in abundant numbers, and top management is rapidly becoming disenchanted with the technical "hot-shot" as a department manager.

Many installations have neither adequate procedures or controls. Machine utilization records, production scheduling and job costs are rarer still. Each of these items is essential to a well run operation. Failure to have them is robbing the installation, large or small, of its potential effectiveness.

Accurate, written procedures is probably one of the worst areas of neglect. It is virtually impossible to intelligently operate a department without them, but for some strange reason the machine accountant considers himself an exception. It is not uncommon to find installations where all procedures are a part of the manager's memory. Even with clairvoyant operators, such a method of operation is deplorable. In other instances, one will find written procedures consisting of scribbled notes on the back of "tab" cards, or tattered and torn scraps of paper.

Is it any wonder then, why "re-runs" are the major product of so many installations? Or why the wastepaper baskets in a "tab" department are the largest to be found anywhere in the organization?

By some estimates, as much as 15 percent of each forms order ends up in the waste basket as a result of report re-runs. Yet, the machine accountant shows little concern as he dumps his production "boo-boos" into the basket, seemingly unaware of the dollars lost daily in the scrapping of expensive business forms, not to mention card costs and lost machine and operator time.

Even on Sunday

Machine utilization records is another essential tool that the machine accounting manager has failed to put to good use. The usual excuse: "We've tried, but the operators simply won't keep track of their time." The excuse is as weak as the man who makes it.

The machine accounting manager should have at his command a complete, daily performance report of every operator and every machine. Without such information, it is impossible to document the efficiency of the department. It is also impossible to perform a good scheduling job.

Here again is where the machine accountant is in constant trouble. So often, his method of scheduling consists merely of a pad and pencil. Whatever department "yells" loudest and most often, heads the list. By the end of a day, the "priority" job may have changed a dozen different times. It has jokingly been suggested that the average installation would be better off with a carnival wheel for scheduling purposes. Each job could be assigned a number and a turn of the wheel would decide the course of action. Without a doubt, such a system would be an improvement over many that exist.

It is the lack of proper schedules that causes the tremendous overtime burden in machine accounting. True, as in any production operation,

some overtime is inevitable. But isn't it strange that in most firms, when every other department is locked up for the night, for the week end, or for a holiday, the machine accounting department is a constant scene of action; most of it unnecessary—all of it costly. But amazingly few machine accountants are aware of the actual cost of their operation. Fewer still have any records to justify the existence of their operation from a cost standpoint. They cannot, for example, define the cost of individual reports produced by the department. Though, in reality, they operate a service bureau for their company, they are unable to allocate the costs to the various departments they service.

"Different and better ways"

Another common failure is to load up the machine accounting installation with every application possible. While such enthusiasm for the punched card is commendable, it has more often than not resulted in numerous jobs being converted to cards that would better have been left to other methods. The error is further compounded by the machine accountant's attitude of "heresy" toward anyone who dares suggest that certain jobs be taken off the card system. This attitude has created much resentment against the machine accountant and further limits the effectiveness of his operation.

There are increasing signs that top management has lost its patience with the entire machine accounting set-up. More and more they are turning to consultants to overhaul the operation. In many of these instances, the manager becomes a casualty. In other cases, his house is put in order and he is given a final opportunity to keep it so. One interesting approach, involving a large eastern insurance company, is reported in a recent copy of The Manager's Letter, published by the American Management Assn.:

Caught between rising costs of the machine accounting department and the supervisor's complaint that they had too few people and/or machines, the company decided to take a close look at both people and machines. They assigned "work sampling technicians"—recent high school graduates who received three weeks' concentrated training—to each section of the department for a three or four-week period. Machines and operators were studied separately during both "slack" and "busy" periods.

The findings, which indicated very low utilization of personnel and machines in relation to the scheduled workload, surprised even the suspecting management. Operators spent too much time on non-machine operations, such as conferences and getting instructions. The result was low productivity for both operators and machines, and excessive overtime in all sections.

With the facts of the study as a springboard, management went to work on the problem. Better instructions and procedures drastically cut employes' nonproductive time; built-in control programs increased man/machine utilization. In less than six months, machine utilization was up 17 percent. A monthly savings of over $3,800 was realized by the release of 18 machines. Employe productivity was up, with the same number of people doing more work. Reports went out much faster and a serious time lag in reporting vital information was closed.

There was also a breakthrough in the supervisor's thinking, commented a company official. "We've been able to show and convince them that there are different and better ways of doing jobs they've been doing for years."

The machine accounting problems of this company were little different from those confronting a good share of the country's installations. The problems can all be traced to a lack of managerial ability in the department.

This is the crisis confronting the machine accounting profession today. Its membership must either accept the full responsibility for managing an installation, or be prepared to perform in a much lesser role while others take up the management reins. The latter course would be a tragic one indeed, considering the years of "blood, sweat and tears" that many members have contributed toward establishing machine accounting as the backbone of the nation's data processing operation.

Take these tools

The machine accountant is equal to the challenge if he will but abandon his "fly-by-the-seat-of-the-pants" philosophy and take advantage of the tried and proven management principles that are readily available.

He must look at his installation, not as the extension of accounting or some other department, but as a separate and vital entity. It is actually a data production operation, with facts and figures as input and completed reports as output. All of the procedures, schedules, controls, and techniques necessary to supervise a production line are equally important to the machine accounting installation.

The manager who takes these tools and puts them to work is assuring himself of an important role in the future of data processing. Those who reject these tools will soon assume the role of spectator. ■

57 years behind the times, American Furnace used punched cards, wire transmission and special forms to up-date office procedures

Integrated Data System Nearly Doubles Order Output

THE CORRECT application of Integrated Data Processing principles has helped American Furnace Co., St. Louis, to eliminate work-laden desks, overtime charges, shipping delays, billing delays, and petty squabbles between employes. It's also helped to eliminate the problem of incomplete, inadequate and often inaccurate sales analysis reports.

In changing from a handwriting-typewriting system to one that involves automatic typing and calculating, wire transmission, specialized forms and punched card tabulation, American Furnace was able to reduce the cost of processing orders by 43 percent.

Many office procedures that had been established by the company when it was founded in 1900 still were in existence in 1957. During that period, shipments had grown to 35,000 units a year and the company began to realize that it had outgrown its previous systems.

Not only had sales volume increased, but the complexity of the industry also had grown—and created additional problems. Basic furnaces—for gas, oil and coal—had many different accessories added to them, including various fuel manifolds and alternate motor and pulley specifications for cooling, and electric heating and air conditioning also were gaining rapidly in the domestic market. American Furnace discovered that 75 percent of its shipments were subject to some variations in components.

Under the old methods, incoming orders were handwritten on a five-part form which provided a billing copy, a shipping copy, a packing list, and salesman's and customer's acknowledgements.

Although the company has a warehouse in St. Louis, furnaces are not easy to store, and the greater portion of its orders had to be filled from a plant in Red Bud, Ill. Consequently, the two copies pertaining to shipping had to be sent to Red Bud via daily truck.

In Red Bud, bills of lading were handwritten and a notice of shipment was sent back to St. Louis, also by daily truck. One girl would spend all of her time computing the extensions, while another spent all of her time typing up invoices. Since so much of the information was handwritten, there were inevitable arguments as to who had made what mistake.

Flat tires and overtime

Information for reports, such as sales analyses, commissions, territory breakdowns and the like, had to be taken off manually, and there usually were mistakes which would not be caught until the end of the month. This took time and, when added to the time spent in other manual operations—or to occasional truck delays caused by inclement weather or breakdowns—it can be seen why the company kept falling behind in billing and ran into heavy overtime charges.

Because there was so much delay in getting shipping orders to Red Bud, and then so much time and expense were incurred in tracing orders on the telephone between the two cities, American Furnace decided to go to wire transmission. Immediately, they could see that a certain amount of automation would be possible in the area of order processing.

Calling in systems and forms design experts from The Standard Register Co., they flowcharted their existing methods and, based on the analysis, added a Friden Flexowriter for the automatic preparation of orders.

With one end of the operation speeded up, it remained for the other end—invoicing—to be improved correspondingly. This was done by in-

As Flexowriter operator prepares four-part acknowledgement form from original order, tape to be used in preparing shipping order is produced as by-product.

W. H. Bandy is manager of American Furnace Order Department, heading section recently up-dated by Integrated Data Processing.

Order auditor receives each incoming order and reviews it to be sure terms and discounts are in order before processing through Flexowriter.

stalling an IBM 632 automatic typewriting-calculating machine with a punched card output.

Forms could make or break the system, so particular attention was paid to this function. At that, a problem arose.

Prepared for the Flexowriter and the Teletypewriter, 8½x8½-in. order entry forms were the first to be designed. However, the use of the 632 and the need for more information required the invoice form to be designed a full 1⅜-in. wider. Nevertheless, the designer was able to incorporate all the necessary data on the invoice without causing the company to scrap many thousands of order entry forms and the problem was solved.

Under the company's present IDP system, incoming orders first are checked for credit, then sent to the Order Auditor, where the items are reviewed and orders are checked for terms and discounts.

Then the order goes to the Flexowriter operator. If a customer master card (a large card with customer information punched on both edges) is on file, it is pulled; if not, the operator prepares one.

Master cards also are on file for all items and accessories, and a combination of the master customer card and the master product card permits the operator to prepare a continuous four-part acknowledgment form. Only the variable information must be entered manually.

To speed up the movement of forms and to reduce operator fatigue, a Standard Register Automatic Linefinder is mounted on the Flexowriter. When the operator has finished typing one form, regardless of where she finishes, she simply pulls the Linefinder lever and the form is ejected while another is brought into position at the first typing line.

Message to Red Bud

The acknowledgment form provides a billing copy, a numerical copy and two acknowledgments, one for the salesman and one for the customer. At the same time, the machine punches a consolidated tape containing all the information in code form.

While the acknowledgment set is being separated and distributed, the consolidated tape is used to prepare the shipping order. If shipment is to be made from the St. Louis warehouse, shipping forms are prepared on the spot. If shipment is to be made from Red Bud, the tape transmits the necessary data via Teletypewriter to the plant, where a receiving machine is loaded with a continuous seven-part shipping form.

This seven-part form provides a shipping order, a packing slip, a production copy, and a four-part bill of lading set. The first three copies are corner-stapled, as are the last four. Bills of lading go to

Orders to be filled by Red Bud, Ill., plant are transmitted via Teletypewriter, saving untold time in between-plant communications, plant-to-customer delivery.

the carrier and the customer, and the other two are returned to the order department along with the shipping order.

Billing copies and consolidated tapes are matched to the returned shipping orders and the complete package is sent to the calculating machine operator for invoice preparation.

A Systematics unit, added to the 632 calculating machine, enables it to accept punched tape input. A Standard Register Electric Linefinder serves the same purpose as the Automatic Linefinder on the Flexowriter, but it operates directly off the typewriter keyboard or from code instructions carried on the punched tape.

The consolidated tape automatically enters all the necessary constant information and the operator adds the variable data (dates, invoice numbers, etc.). Price and quantity extensions are made automatically.

The eight-part invoice set provides an original and duplicate invoice, a file copy, a posting copy, an auditing copy and copies for the sales supervisor, the salesman and the credit department.

Punched cards, produced as a result of the invoicing operation, hold information as to commission; discount; invoice date and number; customer number and location by state; and product, unit material cost, unit labor cost, freight, tax and other details. The punched cards are sent to a Service Bureau, where they are translated into

Automatic Linefinder on Flexowriter and calculating machine positions forms for speedier processing, handling.

vital management records such as sales analyses, price and cost reports and territorial breakdowns.

American Furnace's new data processing system prepares an invoice every two minutes; an order, every three minutes. It has eliminated nearly all of the delays, overtime and petty bickering between employes.

"Now that we're into automation," says W. H. Bandy, manager of the order department, "we're constantly looking for new ways to get more benefits out of it. In the future, we expect our system to take care of our parts handling, perpetual inventory and production scheduling operations." ■

Continued from Page 28

machine stations, calculating machine stations attached to statistical departments, mechanized accounting factories, and calculating centers.

The part played by calculating machine stations attached to statistical departments is mounting steadily, and in the Central Asian republics and Kazakhstan, they are practically the only existing centers for mechanized accounting and statistics.

We must see to it that these stations serve as models exemplifying the productive use of the equipment and the proper organization of technology. The calculating machine stations of the Central Statistical Board of the Moldavian, Latvian and Lithuanian Republics; and the statistical departments of the Leningrad, Lvov, Stalingrad and other regions are doing better work than others, although they too are far from being models in the Central Statistical Board system. There are still very many serious shortcomings in the activity of the stations under these statistical departments and one of them is the high cost of operation.

An important role belongs to the group stations. With their help and the help of the mechanized accounting factories, mechanized accounting is to be introduced at numerous small enterprises and organizations where it is difficult to make full use of up-to-date machine stations.

Much has been done in the way of experimental district calculating machine stations which would operate on a self-supporting basis. Their development will be very important to mechanized accounting on collective and state farms.

Soyuzmashuchet's success

Soyuzmashuchet of the Central Statistical Board of the U.S.S.R. already has done some successful experimental work in centralizing mechanical accounting on collective farms. The work it initiated is being advanced by the republican Ministries of Agriculture.

The Serpukhov calculating machine station is already operating in the Moscow region. District calculating machine stations are being set up in Kirovabad (Azerbaijan) and Kurgantube (Tajikistan) to meet the needs of the collective and state farms in the Vakhshkaya Valley; altogether some 40 experimental district calculating machine stations are expected to be set up during the period 1960-61 so that the experience of the organization of these stations and their operation may be widely spread in all regions and republics.

An important role will be played by the computing centers, which are being established chiefly on the basis of electronic techniques. The computing centers will be able to serve not one but several enterprises, organizations and offices which will be chosen not so much on the basis of territorial proximity as similarity of work to be done. There are computing centers in the state planning committee and the U.S.S.R. Academy of Sciences, and some are being or will be established at large enterprises within the system of the Railway Communications Department, leading designing organizations, statistical bodies, and large research and educational establishments.

Exchange of experience

Mechanization of accounting and statistical work in the national economy is unthinkable without adequately trained personnel, of which we now have a definite shortage. This shortage is most evident in the training of mechanized accounting experts. The training plans are insufficiently coordinated with the output of calculating machines. Too few highly-qualified specialists are being trained for the maintenance and manufacture of mechanical accountants.

Special attention must be given to the quality of the training. An interesting experiment in combining study at the Moscow Institute of Economics and Statistics with work at the Central Calculating Machine Station of the Central Statistical Board has been carried out. Beginning with the 1959-60 academic year, more than 100 first-year students of this institute were enrolled at the Central Calculating Machine Station, where the students worked in their particular specialties and, in the course of the academic year, learned to operate adding, computing and punched card machines. This method ensures the training of specialists well versed in practical work.

Planners, operators and mechanics now are being trained, and bookkeeping personnel instructed, in mechanized accounting courses sponsored by the personnel department of the Central Statistical Board.

A most important prerequisite today is an exchange of experience in mechanized accounting work. It is essential to publish more books on the subject.

Focus on self-support

People working on the mechanization of accounting and statistics must focus their attention on raising the economic effort of mechanization. It is important in this respect to reorganize the stations as fully self-supporting units. Draft plans provide for incentive payments to administrative and engineering personnel employed at self-supporting calculating machine factories and stations. The latter are exempted from registration in financial bodies which stipulate staffs and payrolls of calculating machines and mechanisms operators. At these calculating installations, the regulations for determining the payroll are the same as the industrial enterprise; that is, on the basis of the actual volume of work done.

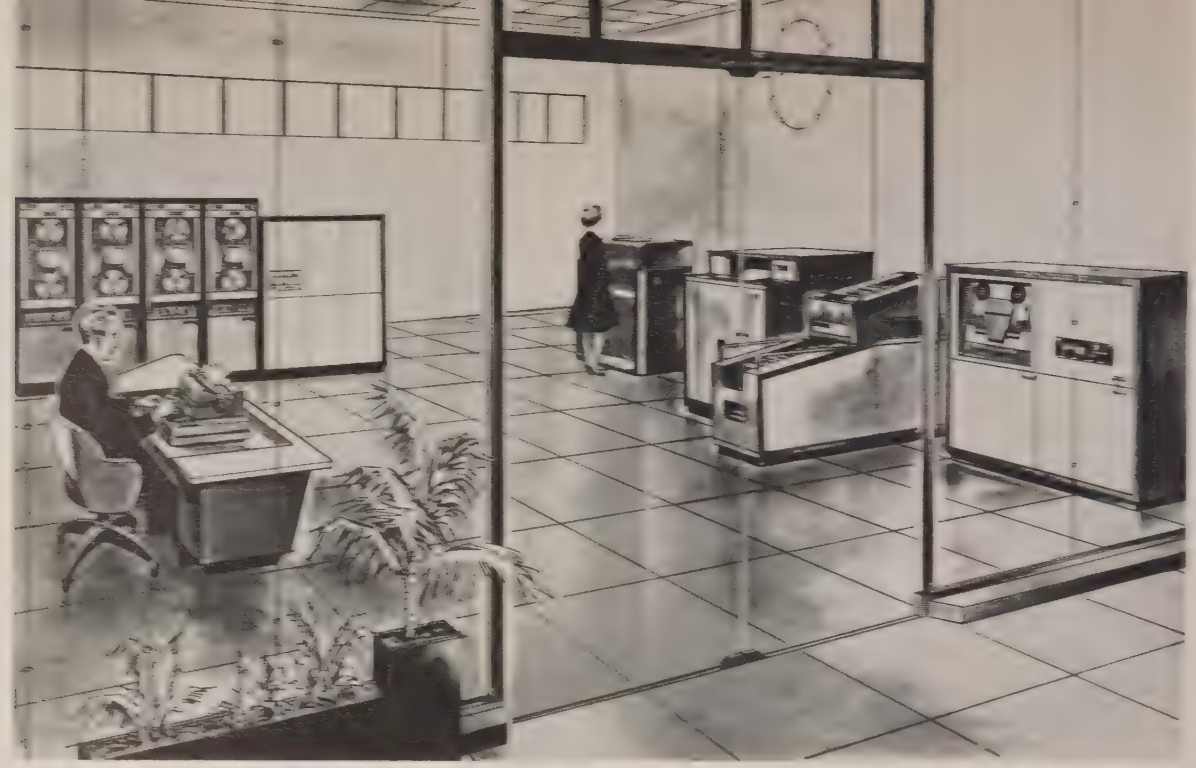
At the close of 1965, the number of calculating machines in the U.S.S.R. will total more than 500,000 units. By then, there will be 40 calculating machines per 100 accounting personnel. This will make it possible, before the completion of the seven-year plan, to release about 300,000 accounting workers with an annual wage fund of two billion rubles (roughly the cost of all the calculating machines, minus the electronic computers, to be produced during the seven-year plan). When these machines are available, we will have to solve the basic task of organizing our accounting and statistics on the basis of an extensive network of calculating machine stations, linked from top to bottom with modern means of communication. ■

The LGP-30 Electronic Computer begins breaking up figure-work bottlenecks the very same day it is delivered.

The Royal Precision LGP-30 is a complete electronic computer system that is delivered to you ready to go to work. It requires no special personnel. It is simple to program and operate . . . an engineer can use it himself. It requires no air-conditioning or expensive site preparation. In fact, it requires *no* site preparation. Just roll the LGP-30 to where it's needed and plug into the nearest convenient 110-volt AC wall outlet. It's mobile, so it goes anywhere . . . desk-size, so it takes little room.

And, though the LGP-30 can solve routine and theoretical math problems 30x faster than any man—it rents for little more than the salary of an additional engineer. Amazing? No, just well-designed, *advanced.* Let us tell you more about it. Write: Mr. Floyd Ritchie, Royal McBee Corporation, Port Chester, New York.

ROYAL McBEE GENERAL PRECISION
ELECTRONIC DATA PROCESSING SYSTEMS



Lined up for the Philco 2000, the new Model 2401 computer system includes two additional magnetic tape units, the 2401 central processor, a card reader, a high-speed printer and a card punch.

Peripheral System Expands Philco's 2000

Product Preview

THE NEW Philco 2401 peripheral electronic data processing system has been announced by the corporation's Computer Div. as a concept designed to relieve the Philco 2000 central computer of many routine tasks, adding up to 25 percent to the time available for the central computer to process computational problems.

The 2401 system includes a central processor with 8,192 characters of high-speed core storage, two magnetic tape units with a transfer rate of 84,000 characters per second, a card reader which reads 1,250 cards per minute, a high-speed printer which prints 900 lines per minute and a card punch.

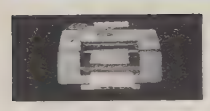
The 2401 processor includes stored-program functions such as editing, search and select, sorting and data translations. The basic system permits the additional input-output devices and memory expansion. Reduction of floor space, maintenance, power and operator controls are features of the Philco 2401's compact design.

The 2401 uses all input-output functions for Philco 2000 systems and uses standard Philco input-output devices and magnetic tape units. It combines stored-program input-output processing with a minimum of central memory for each device, minimizes operator functions, and eliminates programmed playwaits. A 2000 used with a 2401 system can be coordinated to operate in parallel on portions of a job best suited to each computer, reduces problem time and increases system capacity. The Philco 2401 asynchronous design permits a maximum amount of simultaneous input-output operations.

The Philco 2401 complements the high-speed precision of the Philco 2000 fixed word organization by adding the flexibility of character oriented data handling. According to Philco, this combination permits efficient, handles variable lengths of input-output data, simplifies manipulates data character-by-character and bit-by-bit for editing and code translating; flexibility input-output channels are interchangeable and readily adaptable to other peripheral devices; compatibility, accommodates code formats of other computer systems; and economy, reduces hardware requirements.

The system used with the Philco 2000 central computer will lease for about $7,800 per month and now is available for order, with delivery ranging from 12 to 15 months. [Circle No. 181]

So much confusion!
So many claims!
Here at last are



THE PLAIN FACTS ABOUT OFFICE COPIERS

Why so many ways to copy? Why so many machines? Will they all do the same job? What's the difference in price? How much for copies? How good? How fast? Before you invest in *any* office copier, here are some pointers that will help you pick out the particular process that is best for your needs.

A SHORT, SIMPLE GUIDE TO COPY MACHINES

How to choose the one that's best for you

THESE ARE THE METHODS

Of the many ways to make office copies, these five are most common:

1. Photocopy (diffusion transfer). Basically a photographic process. Copies are made through direct contact with a light-sensitive negative paper. Image is then transferred to positive sensitized sheet. Often a 2-step process.

2. Photocopy (dye transfer). Similar to diffusion transfer in that it uses photographic principles. Image, however, is transferred from a matrix to non-sensitized paper.

3. Thermography. Literally a "burning" process. The dark areas on a page, like typewritten words, absorb more heat than the blank areas. Thus, the words on the original, exposed to infra-red light, will burn an image onto the heat-sensitive copy paper.

4. Electrostatic. A process in which a dark powder forms the image. The image is at first invisible, consisting only of a positive electrical charge. The negative-charge powder adheres to the positive areas and makes the image visible.

5. Diazo. A dyeing process. Light passes through the original to a sensitized copy paper and deactivates areas not blocked by writing on the original. When this paper is exposed to a chemical (the diazo), the latent image is dyed into a permanent print.

HERE'S HOW TO CHOOSE

As you would expect, each of these methods has its advantages; each has its drawbacks. Which is best for you depends upon:

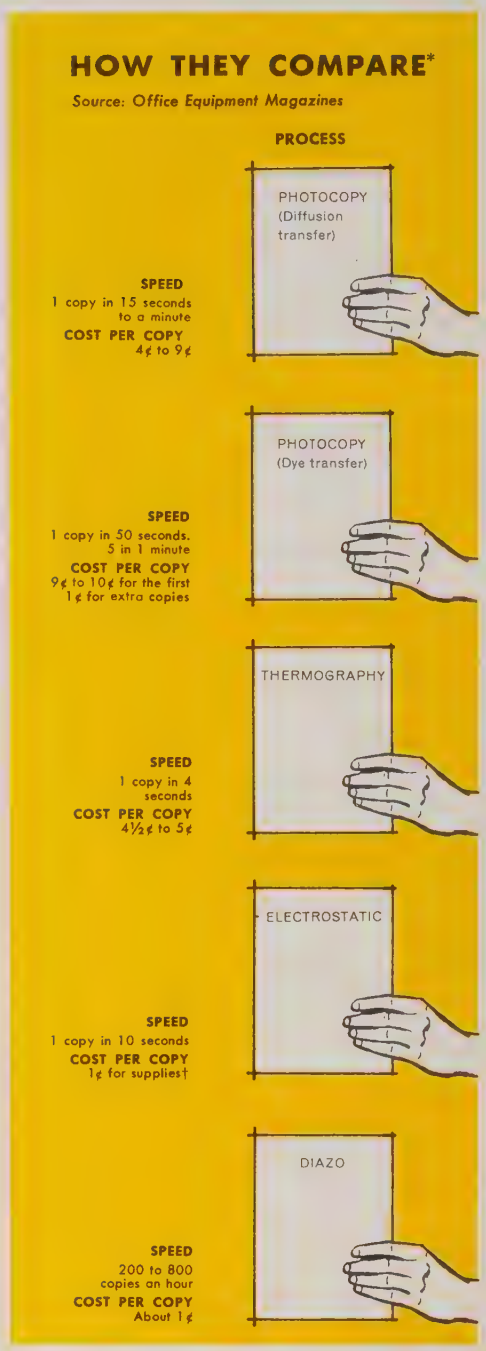
- how many copies you'll be making
- how good you want them to look
- how much you're willing to pay

For example: if you plan to make only a few copies a day, you might select a copier from groups 1, 2 or 3—whichever one strikes you as best for the money. Prices here can be quite low (as little as $99.50 for a photocopier, for example). But with the lower-priced machines you pay a high price per copy, 4¢ to 10¢—even more if you count waste. And copy quality may not be all you'd wish.

If your business requires numerous copies, then you're wise to pay a little more for the machine—and a lot less for the copies. Take a diazo copier. While it may run $300 or more, it will produce excellent copies in seconds—at a cost of 1¢ apiece for letter-size materials.

HOW THEY COMPARE*

Source: Office Equipment Magazines



*Speed and copy costs are estimates for letter-size copies using materials of average quality and runs of average length.

†Not including other charges such as leasing, etc.

the argument for buying a better machine

Part of it you see from the chart. A diazo machine turning out copies at a rate of 200 to 800 an hour, produces them for a cost of 1¢ apiece. Compare this to the 4¢ to 10¢ cost with a "cheap" copier and you see how quickly the quality machine pays off. It's the old story: you get what you pay for.

But there's more to the story than money saved. Where any machine will provide copies, a diazo machine provides systems that speed and simplify all business paperwork: order-billing, production control, purchasing-receiving, accounting, marketing, personnel, general administration, engineering.

The diazo copier you see here will provide as many copies as you wish, whenever you wish, all clear and exact duplicates of translucent originals. (Most office stationary is translucent enough for this purpose. And when 2-sided material is to be copied, the necessary translucent copy can be secured directly on diazo equipment using reflex film.) Diazo copiers can also make reproducible copies—"duplicate originals"—from which subsequent copies are made. This facility is the key to many time-and-cost-reducing systems applications.

Diazo "duplicate originals" are the simplest, most economical, most flexible "masters" for systems applications. You can write or type on them; add to, block out, create composites; make hand-ruled and multiple-part forms; even reproduce in colors.

In addition, diazo copiers add flexibility to electronic data processing by providing additional copies of documents produced on high-speed printers, teletypewriters and automated typewriters.

Diazo also supplements photocopiers and electrostatic machines for fast reproduction of extra copies. And diazo also makes masters for high-speed, offset printing.

Yes, there *is* a difference with diazo.

how to tell the claims from the facts

Much of the confusion over office copiers comes from the flood of competitive claims. This machine is cheapest... this one is fastest... this one is the easiest to use.

how do you separate claims from facts?

Actually, it's not that the manufacturers don't tell the truth, they do. They have to. But they don't have to tell it all. For example—

HERE'S WHAT THEY SAY	HERE'S WHAT THEY DON'T SAY
For Photocopy (Diffusion transfer): *Copies everything, every color, every paper—in seconds.*	Copies run as high as 9¢ apiece. The process is not appropriate for long runs.
For Photocopy (Dye transfer): *Gives you five easy-to-read copies in one minute for 2½¢ each.*	Five copies are the practical limit. For the next copy, you start over—at 9¢ for the first.
For Thermography: *Does more jobs than any other copying machine.*	But it can't match the others for quality. Waste is a high cost factor.
For Electrostatic: *Supplies cost about 1¢ per copy.*	*Supplies*, yes. But in addition, you often pay a substantial monthly leasing charge.

what about diazo?

These pages have made some strong claims for the diazo process. What of *these* claims?

Says Charles Bruning Company, largest manufacturer of diazo copiers:

FIRST, the comparisons you see here are not Bruning's. They were compiled by impartial authorities. No authority—indeed, no competitor—contests the fact that diazo is the most economical and versatile copy process known.

SECOND, diazo is, overwhelmingly, "the professionals' choice"; architects, draftsmen, engineers. They *must* have quality; they *must* have speed; they *must* count costs. And they choose Bruning diazo copiers over all other makes combined.

THIRD, Bruning stands ready to demonstrate that every one of these claims is true. In your own office, on your own operations...

Before you buy an office copier

HERE'S WHY IT PAYS TO TALK TO BRUNING

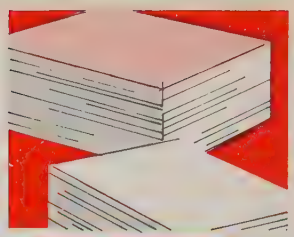
You want *speed*. A Bruning machine makes letter-size copies in a few seconds—200 to 800 an hour.

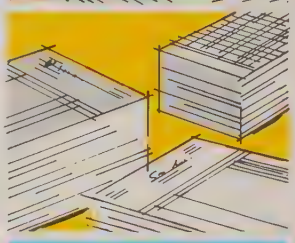
You want *quality*. Bruning copies are always sharp and clean—you're proud to have customers see them.

You want *flexibility*. A Bruning copier is unequaled for system applications and for general copying needs where the original can be controlled. Unlike other copiers, a Bruning will make reproducible copies *from* reproducible copies.

You want *savings*. The Bruning diazo method turns out letter size copies for 1¢ each for materials. All other processes run four to ten times as much.

You want *selection*. And here it is—



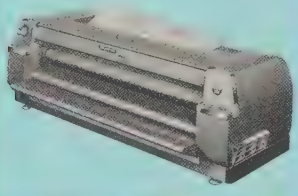


the one best copier for every business office system

Model 250

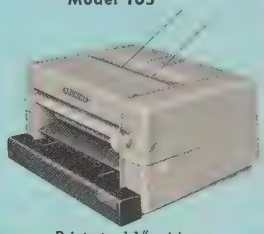
Prints to 18½" wide

Model 300



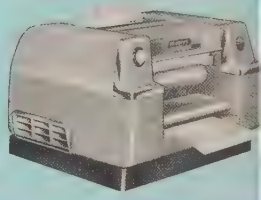
Prints to 30" wide

Model 105



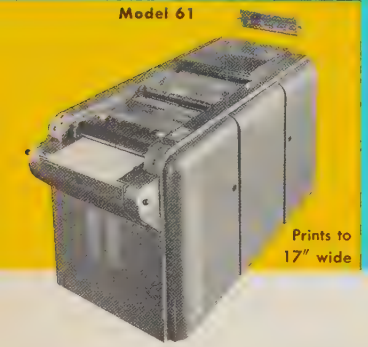
Prints to 11" wide

Model 110



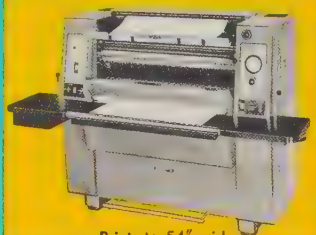
Prints to 11" wide

Model 61



Prints to 17" wide

Model 675



Prints to 54" wide

Revolute Starlet

Prints to 20" wide

Model 430

Prints to 42" wide

CLEARLY, YOUR CHOICE IS

BRUNING

Charles Bruning Company, Inc. Mount Prospect, Illinois

FREE DEMONSTRATION

33

Charles Bruning Company, Inc.
1800 Central Road, Mt. Prospect, Ill.
In Canada: 103 Church St., Toronto 1.

I would like to have a Bruning man demonstrat
what a Bruning copier can do for our business.

Name.....

Title.....

Company.....

Address.....

City.....County.....State.....

A-2844

Printed in U.S.A

Featured in a new line of printing and embossing equipment introduced by Farrington is this Model 450 Printer for preparing metal embossed plates.

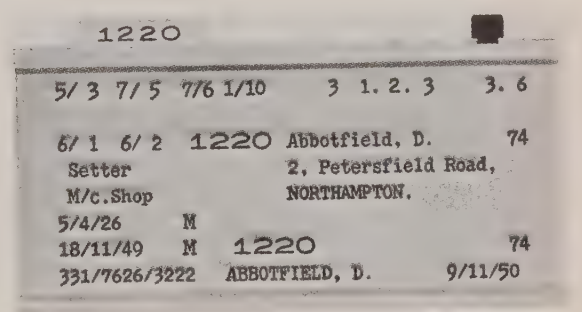
Farrington Creates Data Writing System

A COMPLETE new line of printing and embossing machines has been introduced by Farrington Business Machines Corp., marking Farrington's entry into the embossed metal plate field.

Feature of the line is the Farrington 450 Printer (shown above), a fully automatic machine which prepares a wide variety of office and factory paperwork from embossed metal plates. The Model 450 is designed to handle payrolls, statements, invoices, dividends, product control forms, plant maintenance instruction and addressing operations. The printer will accommodate extra-large forms and has a large capacity plate magazine with plugboard selection, which makes the all-electric model suitable for heavy-duty work.

Introduced at that time were the Farrington 620 Automatic Embosser, which produces either metal or plastic plates. Quiet in operation, the automatic embosser has a capacity of 90 characters, which are displayed on an illuminated dial.

Basis of the Farrington data writing system is a one-piece recording unit on which facts and figures can be embossed for complete or partial reproduction. The unit, available in various colors for keying, is made from a malleable light alloy.



A malleable light alloy "one-piece plate," once embossed, becomes a reading record and a printing medium.

Once embossed with the required data, this plate becomes both a positive reading record (from the face) and a printing medium (from the back). The unit is permanent, but allows for any revisions by re-embossing. Two sizes of plates are Model 2RT, which has a capacity of up to seven lines of 38 characters per line, and the large model 3RT (shown above) which takes up to nine lines of 46 characters per line. Automatic printing selection is based on "pips" embossed on the left-hand edge of the plate. Circle No. 103

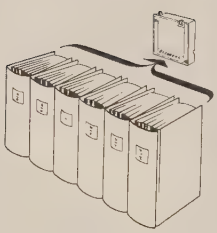
MICROFILMS UP TO 500 ITEMS PER MINUTE!

New RECORDAK RELIANT 500 Microfilmer—in one continuous operation—automatically feeds your office records . . . photographs one or both sides at once . . . indexes the film images . . . even endorses, cancels or face-stamps originals with accessory endorser. Also, a "twin" roll of film can be exposed simultaneously for off-premises security.

Film units can be interchanged in seconds, which allows various departments to use the same microfilmer and *still keep their records separate.* It's almost like getting extra microfilmers for the cost of extra film units.

DATA HANDLING . . AND RECORDAK

Meeting today's tough record-



ANY MICROFILMED RECORD OUT OF MILLIONS VIEWED IN 20 SECONDS! New RECORDAK LODESTAR Reader turns on automatically when you insert magazine containing thousands of microfilmed and indexed pages of office records, catalog information, or decoded computer data. No threading. No adjustments. No handling of film—ever!

Fast as the RECORDAK LODESTAR advances your film the index lines are easy to follow . . . lead right to the pictures you want. On-the-job tests show that it actually takes less than 20 seconds to retrieve—and view—any record out of the millions which can be kept within arm's reach.

TRANSLATES COMPUTER LANGUAGE INTO PLAIN ENGLISH!

New RECORDAK DACOM System produces microfilm images of graphic arts quality from the invisible pulses on magnetic tape at speeds up to 20,000 characters per second. That equals or exceeds computer speeds . . . is many times faster than mechanical printers. The information decoded from as many as eight 2,400-ft. reels of magnetic tape fits on one 100-ft. roll of 16mm RECORDAK Microfilm, measuring only 4″ x 4″ x 1″.

RECORDAK DACOM System is incredibly versatile—optically combines computer data with any office form design . . . gives you, for example, a complete customer statement on a single film image, from which a paper print can be made. Also, it provides fastest, most accurate method of point plotting, and logic diagramming of electronic circuits.

handling problems head on!

New From RECORDAK! Streamlined new equipment . . . incredible new systems . . . entirely new concepts in handling everything from office records to computer tapes.

Even in the brief picture-captions on these pages you will find some (perhaps many) suggestions for more economical handling, storage, and retrieval of the records you use daily. And there's much more to the RECORDAK story!

Free literature . . . and a cordial invitation

Send for booklets describing ☐ RECORDAK RELIANT 500 Microfilmer; ☐ RECORDAK DACOM System; ☐ RECORDAK LODESTAR Reader; ☐ RECORDAK Precision Engineering Drawing System.

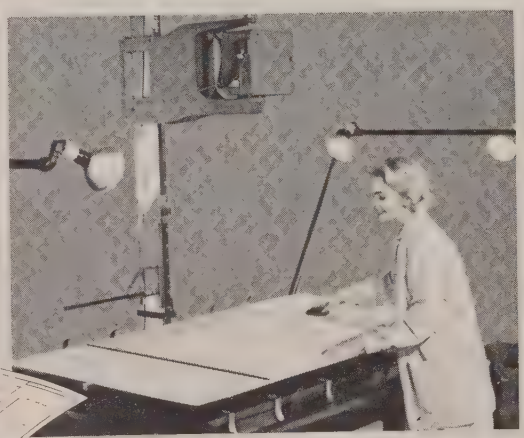
Better still, accept our invitation—have a Recordak Systems Man stop by to discuss your specific record-handling problems. No obligation! Write Recordak Corporation, 415 Madison Ave., New York 17, N. Y.

RECORDAK®

(Subsidiary of Eastman Kodak Company)

originator of modern microfilming
—now in its 34th year

IN CANADA contact Recordak of Canada Ltd., Toronto



DECKS OF MICROFILM CARDS REPLACE BULKY DRAWING FILES! The RECORDAK Precision Engineering Drawing System gives you drawings-in-miniature on low-cost 35mm RECORDAK Microfilm which more than meet DOD specifications. Smallest details are extremely sharp, backgrounds are remarkably uniform even when drawings and prints of every type and age are microfilmed.

Mounting these superb film-images in file cards gives you a complete drawing file which can be kept at the finger tips . . . ready for instant viewing in RECORDAK Film Reader. Ends waiting for reference blueprints . . . cuts blueprint costs. Whenever needed, facsimile prints—or duplicate film cards—can be made directly from the master cards.

Copying originals up to 11-in. wide and 150-ft. in length, this photo-copier produces flat, dry reproductions at the rate of four per minute.

Three Companies Combine Skills In New Automatic Copier

A FULLY automatic copying machine has been simultaneously introduced by Anken Chemical & Film Corp; the Ozalid Div. of General Aniline and Film Corp.; and Photek, Inc., newly formed subsidiary of Textron, Inc.

The machine copies any kind of original up to 11-in. wide and 150-ft. in length. When an original is fed into it, the machine turns itself on automatically, an exposure is made, the machine adjusts itself to the length of the original, trims the positive, delivers developed prints flat and dry, and turns itself off. Reported to make clear black and white copies of all colors, producing high quality permanent and consistently usable copies, the machine utilizes the diffusion transfer copying process.

The product is marketed under the name "Amptomatic," "Transcopy Automatic," "Cormac 600," and "Contura Executive" by the four marketing subsidiaries of Anken; "Transfer-a-matic" by Ozalid; and "Consecutor" by Photek.

Several advantages are cited. The machine processes single sheet documents with images on opaque or translucent paper or transparent file, printed or written on one or both sides. It copies image colors printed on various background colors. It cuts copy paper from a continuous roll to the length of the original. It overcomes the necessity of stocking various sizes of sheet negatives and positives. The machine is electrically activated, operating on a standard 115-volt, 60-cycle AC line. No warm-up period is required. Four 8½-in. by 11-in. copies are said to be produced in one minute.

The automatic machine produces a crisp black image on standard white paper. Copies are permanent, legally acceptable and lie flat, with no paper curl.

Casing for the 22-in. wide, 18-in. deep and 10-in. high copier is made of molded, high-impact polystyrene with a design suitable for any office table top. The weight is 65 pounds and the machine is easily accessible for the operator to replenish paper or to clean.

A one-piece plastic top, hinged at the back, flips up to expose entire mechanism. Developer tray and rolls slide out for convenient cleaning. A reserve tank inside of the machine automatically refills the developer tray. Solution flows into the tray through a feed line when the fluid level drops.

A single control is used for exposure. Wide photographic latitude compensates for variance in quality of originals, eliminating waste experimental copies.

The new copier was developed and is being manufactured by Ozalid, with Anken and Photek providing technical evaluation. Anken also developed the special paper and developer used in the machine.

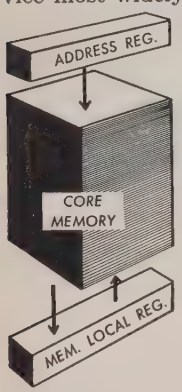
On the new machine, no lining up of the original and the sensitized paper is necessary. The original is simply placed into the machine and out comes the original and a positive copy. It will not stick to other copies or surfaces. Price of the new unit is said to be in the $600 range. Circle No. 102

From Honeywell:

A brief analysis of some of the basic terms used to compare computer performance

New claims, counter-claims, and comparisons of performance are being made by computer manufacturers every day. To help bring this welter of statistics into focus, Honeywell's Electronic Data Processing Division feels it necessary to define and briefly analyze a number of factors that are being considered in evaluating the relative performance of EDP Systems. Here are some of them:

MEMORY ACCESS TIME The memory device most widely used in electronic computers is the coincident-current magnetic core memory. It has three basic parts: An Address Register, a stack or array of magnetic cores, and a Memory Local Register.



When the Address Register receives information identifying a specific location in the core memory, the content of that memory location is transferred to the Memory Local Register, where it becomes available for processing.

Memory Access Time is the time it takes to perform this transfer.

MEMORY CYCLE TIME When information is transferred, the content of the memory location is destroyed. However, the information is still available in the Memory Local Register, where it can be, and usually is automatically restored to its original memory location. The time needed to restore this in-information — Restoration Time — usually equals Memory Access Time.

Memory Cycle Time equals Memory Access Time plus Restoration Time. When new information to be stored is placed in the Memory Local Register for assignment to a memory location, it is inserted during the Restoration Time of a separate memory cycle and the Access Time of that cycle is generally not used.

Memory Cycle Time is often used to compare internal speeds of computers. For a valid comparison, the amount of information transferred during each cycle must be considered. For example, most small computers handle only one character at a time, while large systems often handle eight or more. Computers that utilize words of fixed length do not always handle a full word each cycle. Some handle half-words or quarter-words, and therefore take two or four memory cycles to transfer one computer word.

For comparative purposes, a more explicit expression of computer memory speed is the number of characters stored or retrieved by the memory in one second. On this basis, Honeywell 800 Electronic Data Processing System has an internal speed of 1,670,000 characters per second, far and away the highest speed in its price class. Furthermore, Honeywell 800 utilizes a separate control memory which often permits overlapping of internal operations, with consequent gains in speed.

INSTRUCTION TIME A fundamental measure of computer performance is the rate at which it carries out instructions. These instructions may contain one, two, three, or even four addresses. Honeywell EDP Systems, for example, use a three-address instruction which, on a conservative basis, is equal to about 2.2 one-address instructions.

Also, some types of instructions take longer than others, and when comparing computers it is important to know if instruction times quoted are for comparable operations. Various Honeywell 800 instructions are carried out at speeds ranging from 7,000 to 80,000 per second. The advertised speed of 30,000 operations per second is a conservative average.

ADD TIME The expression Add Time has generally been subject to extremely loose interpretation. For example, the Add Time of a three-address addition involves much more in the way of computer operation than the Add Time for a one-address instruction.

Add Time has been defined by some as the rate at which a succession of numbers may be totalled, and by others as the time the electronic circuits take to perform the actual addition, ignoring memory times. To be valid as a comparative function, the definition of Add Time should include the size of the numbers being added, the code they are in (binary or decimal), and whether or not the result involves a change in arithmetic sign.

OTHER CONSIDERATIONS There are, of course, several other factors that must be considered in evaluating or comparing the performance of electronic data processing systems. Among these are: use of internal checking, level of reliability, extent of simultaneous operations, and relative importance of certain special features. These and other subjects will be covered in future reports.

SEND FOR ADDITIONAL INFORMATION

In the meantime, if you would like more information about any or all of these subjects, just write to Honeywell EDP Division, Wellesley Hills 81, Mass., or Honeywell Controls Limited, Toronto 17, Ontario.

Toronto Set for NMAA Conference

Casa Loma, towering 98-room medieval castle in the center of downtown Toronto. The multi-million dollar castle is one of the stops on the Ladies' Program.

THE National Machine Accountants Assn. will hold its Tenth Anniversary Conference at the Royal York Hotel, Toronto, Canada, June 28-30.

A new feature, "Seminars in Depth," will highlight the conference, with an expert panel of authorities giving thorough coverage of each seminar subject. According to Bernard Purslow, general chairman, the conference will present the most interesting and complete data processing educational program in NMAA's history.

Seminars will include "A Realistic Look at Management," headed by Alfred J. Drucker, manager of management development for IBM, who will develop the art of getting things done and the practical means of accomplishing more for management by becoming a part of it. Management tools and techniques will be discussed and demonstrated.

A session on "Does a Computer Pay Off," with the pros and cons of computers being debated at great length, will be directed by J. Hugh Burns, RCA, and Ewald Kleim, Burroughs Corp.

William B. Bindman, Urwick, Currie Ltd., Montreal, a management consultant, and Carl Corcoran, manager of IBM's Datacenter, Toronto, will lead a discussion on "Management of a Data Processing Department," exploring practical approaches to obtaining a high degree of efficiency in the operation of the department. The discussion will cover forecasting, policy setting, planning, organizing, commanding, control and operation.

A seminar on "Input Devices" will place emphasis on character recognition, both magnetic and optical. Leading the presentation will be three authorities: James T. Lawson, product manager of IBM, White Plains, N. Y.; Louis Schweiloch, vice president and general manager of New Era Data Scanning Co., Inc., N. Y.; and George L. Fischer, sales promotion manager, Farrington Electronics, Inc., Alexandria, Va.

"Why have character recognition?", general areas with potential for character recognition, and a session on how to determine your character recognition potential will be part of the presentation.

"New Concepts" will feature a projection into the future of data processing by Neal J. Dean, partner in charge of management information systems department, Booz, Allen & Hamilton, Chicago; Claude H. Wiley, manager, special systems, IBM, N. Y.; and Robert K. Lyons, product planning manager, business data processing, computer dept., General Electric Co., Phoenix, Ariz.

Items to be discussed will include: on-line control and communication systems of tomorrow; new automated techniques for the design and construction of the computers themselves, as well as their self-repairing capabilities; the full concept and meaning of an integrated management information system; and the necessary prerequisites for attaining this system.

Particular importance has been placed on the presentation of "Audits and Audit Trails," a seminar that will review the question of adequate audit trail and control for computer installations. Heading the program will be William R. C. Blundell, manager, auditing and

ference headquarters in the Royal York Hotel, located in the heart of metro-tan Toronto and the largest hotel in the British Commonwealth.

training for Canadian General Electric, and Albert J. Klemmer, auditor, Rochester Gas and Electric Corp., Rochester, N. Y.

The discussion will include the question of responsibility if, for example, a bank using magnetic ink character recognition and a computer pays out to the wrong account.

Data processing in the Canadian National Railways will be presented by W. R. Corner, coordinator of data processing for the railroad. EDP activity at C.N.R. is centered in three main project areas: manpower, materials and stores, and traffic. Equipment includes a large centrally-located computer at system headquarters in Montreal as well as medium-scale tape and card computers at five regional centers.

The presentation will stress systems and procedures accomplishments, as well as projections for future plans.

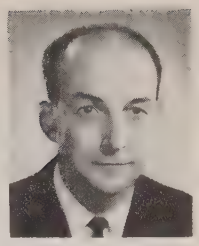
A full-scale discussion of automatic programming will be another seminar highlight. This program will feature Dr. Grace Murray Hopper, one of the nation's top authorities on programming techniques, who will talk on the application and use of "natural languages" such as COBOL, and the next steps to be taken in the development of compilers and implementation of languages. Appearing with Dr. Hopper will be Howard Bromberg, manager of automatic programming for RCA, and Donald C. Flick, senior programming analyst, G. E. computer dept.

In all, some 34 different seminars will be presented, each lasting three hours. All seminars will be repeated to enable registrants to participate in as many sessions as possible.

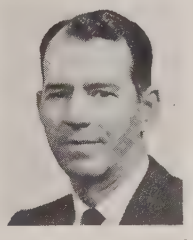
National officers and directors of NMAA will gather in Toronto on Tuesday, June 27, the day preceding the three-day conference, to transact the business affairs of the organization. Principal business at this session will be the election of officers for the coming season and selection of the 1965 site.

For the benefit of early arrivals, the conference committee has scheduled a series of "Tours for Tuesday," during which members can visit various installations in the Toronto area. ■

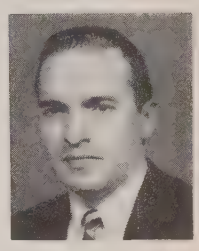
Nominees for National Officers



Pres., A. G. Pia



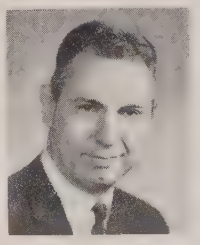
Exec. V. P., E. F. Judge



V. P., J. L. Brandt

V. P., R. S. Gilmore

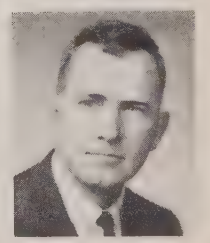
V. P., C. D. Parry



V. P., C. H. Prince

V. P., E. I. Sheehan

V. P., D. A. Will



V. P., J. K. Swearingen

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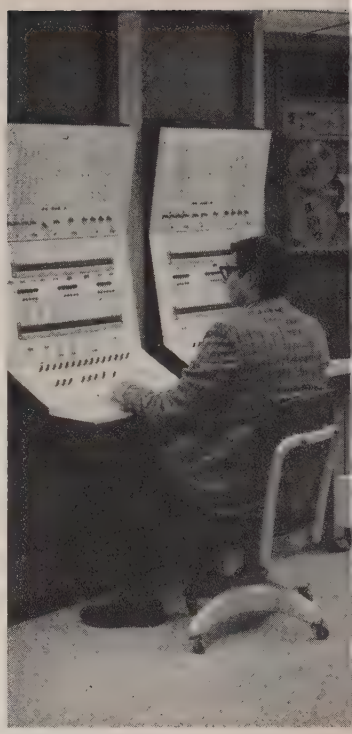
V.P.,'62 Conf.,J. J. Wilk



Requests for information originating at the ticket counter agent's set (above) flashes instantly to United's Control Center in Denver (right). In one to five seconds, Denver's response tells passenger whether he's "on" or "off."

United Books Flights on Instamatic

INSTAMATIC, the world's largest commercial on-line electronic data processing system, is being placed in operation this month.

Designed to control ticket sales, reservations and flight data for United Air Lines, the new system is comprised of three Telefile data processors, located in the United Space Control Center, Denver; 827 countertop "agent's sets"; 12,000 miles of A. T. and T. circuits; and 17 communications units, furnished by North American Philips Co.

According to a joint announcement by United and the Teleregister Corp., Instamatic is larger than any other system except the government's SAGE early warning network. It took 33 months to build and install, and cost $16 million.

Instamatic will enable more than 3,000 United ticket agents in 61 cities across the nation to make reservations in an average time of a second and a half. Utilizing a conventional computer, the same operation previously took up to 45 minutes. Now, United can process 54,000 messages an hour.

About three years ago, through the combined efforts of Teleregister and Philips, a breakthrough in high-speed communications was created, permitting the transmission of more than 1,300 words per minute in digital form over ordinary telephone wires. (Low-speed 100 word-per-minute systems are installed in the smaller cities throughout the United network.)

Agent's sets are situated in airport terminals and United ticket offices in 68 cities, and as soon as the merger between United and Capital Airlines is accomplished, they will be placed in 86 Capital locations, also.

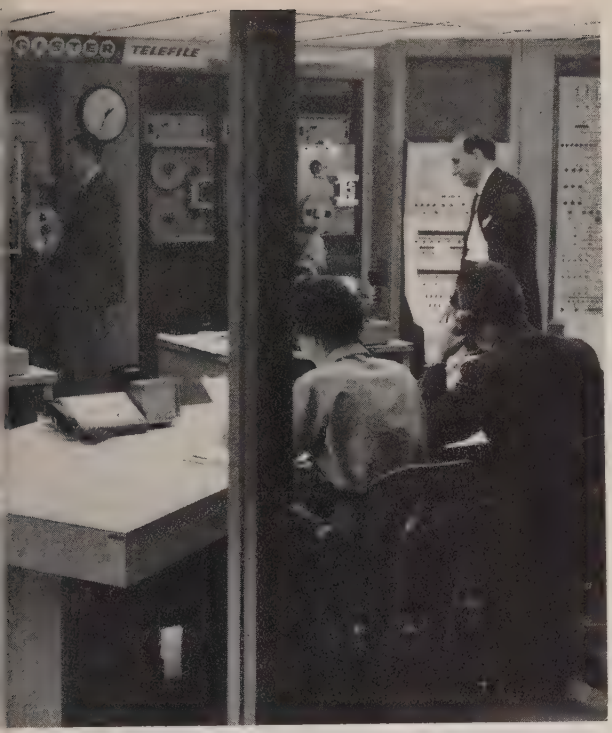
Take your choice

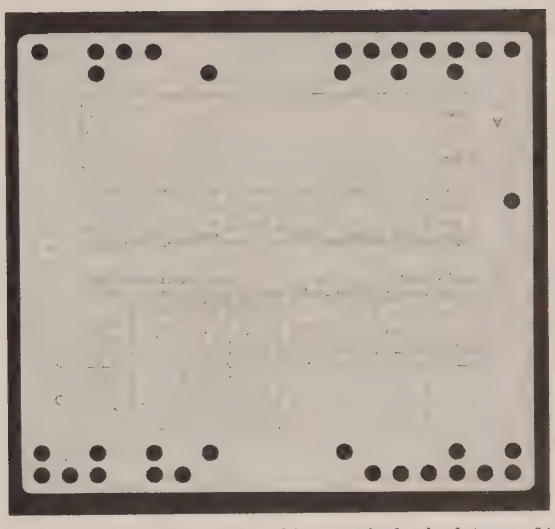
With the push of a button, an agent can perform one of three basic transactions instantly: A check can be made on the availability of space on any given flight, a reservation can be booked or a reservation can be cancelled.

Key to the system is a file of 180 destination plates, each containing eight rows of flight listings, eight listings to the row. When a customer requests information on flights between two cities, the agent inserts the appropriate destination plate in the agent's set; punches in the variable information, such as date, number of passengers and class of travel; and presses the availability button. The request is immediately transmitted to the Denver Control Center.

A second (in the larger cities) to five seconds (other locations) later, the agent presses the availability button again and receives one of three signal-light codes. A steady light under any or all of the eight flights under consideration means that reservations are available; no light means no reservations are available; and a flashing light means deviation from schedule, requiring further checking.

If a reservation is made, a preprinted card similar in size and shape to a tab card is inserted in the machine. The variable information keys used for the availability check remain depressed and the





Destination plates such as this contain basic data on 64 flights each—eight flights per row, four rows per side, front and back.

flight, origin and destination are recorded. An action key — sell or cancel—is depressed and the transaction is instantly recorded in Denver, automatically correcting the Denver flight inventory.

Red light, no flight

A print-out is made automatically on the passenger card, in black for normal transactions and in red for unusual or irregular transactions. A red print-out helps to prevent a ticket agent from over-selling a flight.

The agent then fills in the card with the additional passenger information.

Information on whether a flight is on time or, if late, how many minutes and the reason for the delay can be obtained as a print-out from the Denver center. This information is available in coded form through the use of a special key inquiry.

A special key and a different set of coded plates allow for special situations in which connections are being made between flights. In such cases, it is necessary for the agent to ascertain the number of people on a connecting flight or, in the case of a cancellation, how many people must be rerouted.

As reservations or cancellations are made throughout the country, information on the status of each flight is stored by Telefile on magnetic drums and automatically updated according to information coming in from agents. Historical records of all transactions are kept on magnetic tape and used to produce analytical and summary reports on traffic trends for management evaluation.

Previously, an agent in Denver was required to feed the information into the computer. With Instamatic, an agent deals directly with the data processor.

However, no computer system is better than the information received and there are 47,000 people throughout the world who can book flights for United and may pass along erroneous information. A "tilt" button lights on the agent's set if a reservation is made on a non-existent flight and the printed cards allow for double-checking the information, but an agent still could book the wrong flight on the right day or vice-versa.

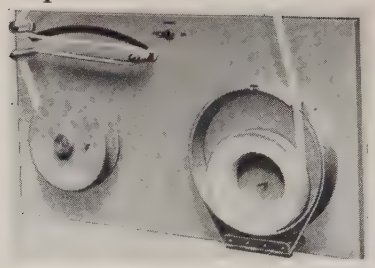
Can't-fail feature

The data system has a built-in reliability of such a high order, however, that the user is guaranteed against equipment failures over 99 percent of the time. This is accomplished by the creation of fallback procedures, duality of vital units of equipment and multiple paths or detours over which messages can be routed in the event of line failures.

For example, in Instamatic there is a loop from Telefile in Denver through Chicago to New York, and then back through Omaha to Denver. Normally, a message from Omaha would go direct to Denver, but if there should be a break in the line between these two cities, the message could detour to Denver via New York and Chicago. ■

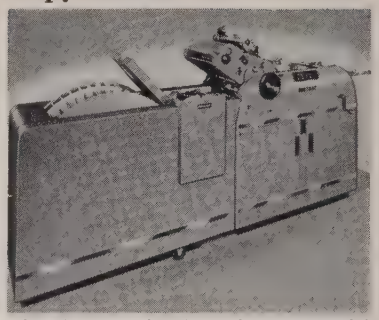
Business Automation Showcase

Tape Handler



A high speed, uni-directional perforated tape handler has been announced by Digitronics Corp. The Dykor Model 4544 has a capacity of up to 500-ft. of five to eight-level tape, interchangeably handled, at speeds of up to 500 characters or 50-in. per second. Designed to function with the Dykor uni-directional Model 3500 photo-electric tape reader, the tape is loaded on the handler by placing it in the bin on the input side of the reader and threading it through the reader onto a servo-controlled take-up spool. To unload, the side of the take-up spool is removed and the tape is slipped off the four-pin hub. It is suitable for standard rack mounting. Circle No. 111

Copy Sorter

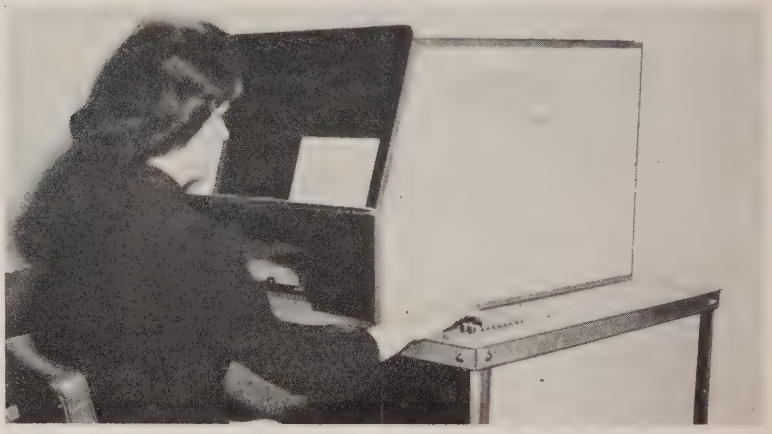


The Automatic Copy Sorter Model 670 of Addressograph-Multigraph Corp. made its debut at the Office Equipment Manufacturers Exhibit in New York. The unit integrates copy sorting with the normal duplicating cycle. The need to gather individually duplicated pages into sets is served as a by-product of the duplicating function itself. Model 670 can be attached to any Multilith Offset Model 1250, 1275 or 2550 Duplicator. Its rotary drum has 50 compartments, each holding up to 100 sheets of number 20 paper. Up to 50 sets of 200 pages each can be duplicated and gathered in one run. Circle No. 122

Interrogator

A device which will enable the operator to "talk" with a computer has been developed by Information Products Corp. The 2502 Interrogator looks like an ordinary electric typewriter with a small viewing screen. It can be used by a bank teller, for example, to receive up-to-the minute customer account data by typing the account number and a simple command code. The request goes by direct wire, over a communications switching center or by telephone lines, to a remote computer. A few seconds later, the desired information is sent back over the same lines and presented on the viewing screen. 504 characters can be displayed. Circle No. 110

Automatic Information Retrieval Equipment

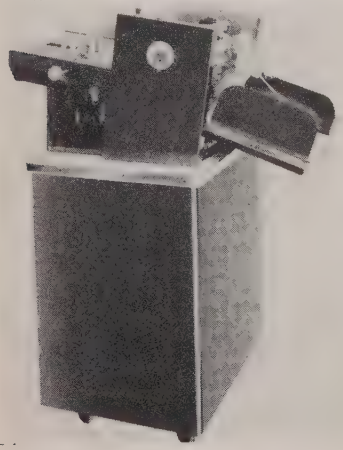


Automatic information retrieval equipment operated from a keyboard and combining the advantages of punched cards and computers has been announced by Jonker Business Machines, Inc. The information input machine, which can be operated by conventional punched cards, paper tape or magnetic tape, is based on the Termatrex "inverted" punched card concept (see Management and BUSINESS AUTOMATION, Nov. 1960, p. 18). The electric equipment will enable a user to insert data on term cards, giving more flexibility for indexing and duplicating different types of information, such as permanent inventories, personnel records, control of scientific reports, statistical studies and library information. This new equipment by Jonker is expected to extend the utility of existing computers by tying them into an inexpensive search system. Small retrieval systems may utilize the equipment in conjunction with a computer rented from a service organization. Priced at approximately $7,500. Circle No. 104

Paging System

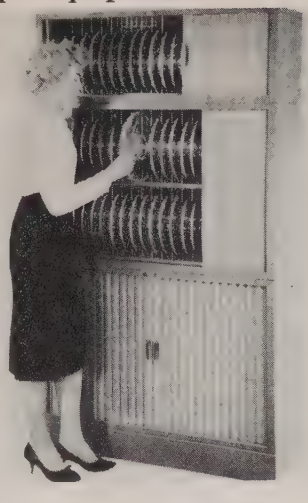
The Edwards Co., Inc., Lokator paging system is designed to page key personnel wherever they are needed in offices, banks, stores, factories, schools and warehouses. Each person frequently paged is assigned a one, two or three-digit code number. Through a network of signals, the Lokator can feed, automatically or manually, sequences of selected code impulses. These impulses cause signals to sound and private, coded paging is assured. Circle No. 126

Stapling Machine



Thomas Collators, Inc., has introduced an automatic stapling machine which can be integrated with the Thomas "Gathermatic" collator, providing fully-automatic collating and stapling operations. It also can be used independently as a hand-feed unit. The unit is portable and, when used in conjunction with the "Gathermatic" dual-head stapler, operates at a rate equal to the collator's output. Sets are automatically jogged square, stapled, counted and stacked. Circle No. 109

Tape Equipment

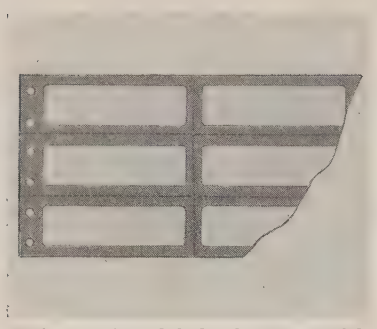


Magnetic tape storage and handling equipment featuring changes in design and functional efficiency has been introduced by Monarch Metal Products, Inc. One of the highlights of the new line is the "Rollaway" (shown above), which introduces the tambour-type doors as standard equipment on cabinets as well as on a card truck. Circle No. 117

Guidance System

Teleguide, a product of LaBelle Industries, Inc., is an audio-visual unit designed for guiding workers on intricate or lengthy assembly operations where a production line set-up is not used. Used in the electrical, electronic, complex mechanical and missile component field-assembly operations, it is said to cut assembly time 50 percent and greatly reduce errors. Using either slides or tape, images on the machine can be changed totally or in part. Cartridges of repeated assembly procedures can be kept on file, immediately available for future production runs. Circle No. 113

IDP Labels



Self-adhering labels for use with data processing machines have been announced by American Tag Co. Fingertip pressure fixes them securely on paper, wood, metal, ceramic, plastic or glass. Carried on a marginally-punched, continuous, fan-folded or rolled strip, these labels can be used on any integrated data processing machine with a pin-feed platen or tractor feed. Imprinted at high speeds from punched cards, punched or magnetic tapes, their use opens up new applications for existing machines and data, such as addressing, correcting, coding and inventory and production control. Available in different widths and depths. Circle No. 121

Fluid System

A "No Pour" Fluid System which feeds directly from the original container has been announced by Ditto, Inc., for use on their Direct Process Models D-30, D-31 and 14D-70. The system eliminates tank refilling, reloading a gallon of fluid at a time, with no spilling, waste and clean-up. A warning signal indicates when it is time to re-load. A screw-on tube cap is removed from old container and attached to new one. Container feeds automatically as drum revolves. Circle No. 119

Dry Copier

Diafax, an automatic office copier that produces completely dry, permanent black-and-white copies, has been introduced by Photorapid Corp. Using the electrostatic principle of transferring images, operation is clean, fast and simple. Original documents to be copied, including bound volumes up to legal size and written, drawn or printed in any color, is placed on a "reading" glass, a button is pressed, and in a few seconds, a low-cost dry copy is prepared. The cycle is electronically controlled, preventing over-exposure. Circle No. 129

Calculagraph 500 Series automatically computes actual labor time — eliminates error-ridden manual methods.

Your data collection system can be greatly simplified and attain greater accuracy with the new 500 Series Calculagraph because this completely new computing time recorder, based on the time-tested Calculagraph principle, computes as well as prints the actual time worked on any given production job. There are no complicated levers or buttons to set. The 500 Series makes the decisions. Production workers merely insert job cards at the "start" and "finish" of the job. The 500 Series does the rest. The actual time worked, with nonworking periods automatically deducted, is printed on the job card and ready for processing.

The 500 Series dovetails easily with any internal data processing system or outside service center. In smaller systems where the volume does not justify the use of machine accounting, this new computing time recorder can be a system in itself.

Investigate this new 500 Series now. Write or call for more details and, if possible, send us samples of your job cards for analysis.

INDUSTRIAL DIVISION

CALCULAGRAPH *Company*

280 Ridgedale Ave., Hanover, New Jersey

For More Information Circle Reader Service Card No. 171

To transfer active records from the new NBB Cable-Post binder to the NBB storage binder, you just unlock the posts, lift off the vinyl cover and replace with a pressboard cover . . . then turn over the binder and repeat.

This exclusive feature is possible because both the top and bottom covers can be removed . . . no lifting of sheets off the posts. *The result is an important saving in time!*

You save time, too, when loading sheets in the binder...load at the top and remove from the bottom. The flexible nylon cable posts bend without breaking . . . let you open the fully loaded binder flat for easy marginal reading.

Get the vinyl NBB Cable-Post binder (for active records) and the pressboard NBB Cable-Post Jr. (for storing records) at your NBB office supply dealer, or write direct for information on special introductory offer. National Blank Book Company, Dept. 1105, Holyoke, Massachusetts.

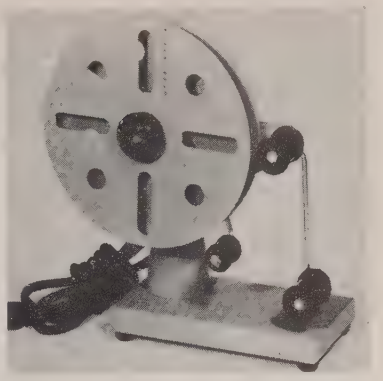
OFFICE SUPPLY PRODUCTS

NATIONAL *Sold by Dealers who deal in the Best*

Inscribing Device For Preparation of MICR Checks

A high production inscriber to speed preparation of checks for automated demand deposit accounting has been announced by International Business Machines Corp. The IBM 1203 unit inscriber prints, in magnetic ink, information required for machine handling of checks and deposit slips as they are received by a bank. It is an addition to the Series 1200 magnetic character sensing equipment and combines listing, proving, endorsing and inscribing functions in one continuous high-speed operation. According to IBM, high speeds are attainable with the 1203 because the operator is freed from decisions regarding document distribution. Following the inscribing operation, checks can be distributed electronically to desired processing categories by IBM reader-sorters at rates up to 57,000 an hour. Entries are made on a 10-key adding machine keyboard on adding machine tape, with progressive sub-totals and totals for proving against control lists. An out-of-balance stop check is optional. Circle No. 105

Tape Threading Winders

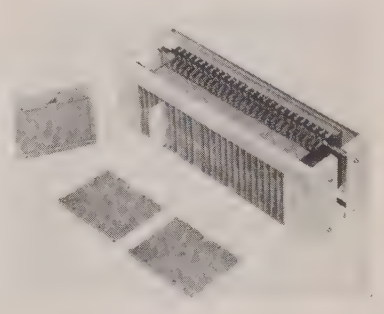


A series of "right side" tape winders which may be used as an integral component of communication, electronic or data processing equipment has been introduced by The Whiteford Laboratory. The winders are available with six, eight or 12-in. diameter reels and will hold approximately 90-ft. of tape per inch of diameter. They adjust automatically to output speeds and tensions. Operation can be continuous, intermittent or unattended for long periods of time. The unattended feature makes them desirable for after-hours transmission or reception of accumulated data. Circle No. 108

Tipping Machine Features Compactness

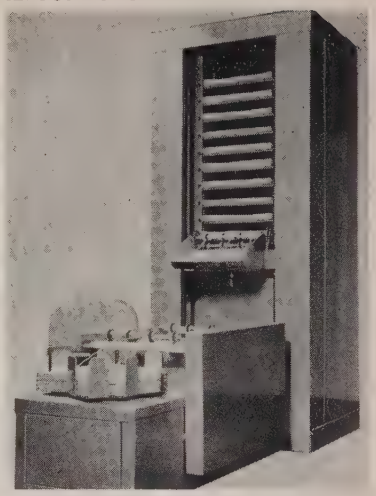
A carbon interleaved snap-out forms-making machine has been announced by Farrington Business Machines Corp. The machine is called the "Tippette" an is a compact model which requires no more space than a regular typewriter stand. It is said by the company to be equal in workmanship and other essential features to larger Farrington tipping machines. Designed for use in small print shops, offices, institutions and company printing plants, the Tippette has folding collating shelves, which when closed for storage, make the entire unit occupy four square feet of storage space. An operator with average dexterity should perform up to 2,000 pick-ups per hour. Circle No. 127

Card Receptacles



Specialized punched card receptacles for use in dispatching centers such as police command consoles are available from Westrex Corp., a division of Litton Industries. Information is written onto the card, which is inserted by the operator into a slot for the vehicle to be dispatched. The card actuates a switch circuit that indicates the status of the vehicle on a central control panel or map display. Up to 25 cards can be accommodated and receptacles can be grouped together. They are modules of Westrex command consoles. Circle No. 118

Electric Collator



A high-speed, automatic electric collator for heavy-duty operation has been introduced by General Binding Corp. Complete collating, stapling and stacking operations are performed automatically at a rate of 8,000 sheets per hour by the GBC '150' Electric Collator. Utilizing the GBC Micro-Detector, the machine provides an accurate sheet count for every cycle, regardless of the thickness of paper used. The detector will automatically stop the machine and an illuminated signal will indicate if collated set has either an extra or missing sheet. Circle No. 115

Letter Opener

A low-cost, compact, heavy-duty letter opener has been introduced by Openette. Designed for office or home, the opener cuts envelopes with a precision, self-sharpening, razor-edge blade. The letter is inserted end-wise in the slot, the bar is pressed and the letter is neatly opened. It is 4 x 8-in. and weighs three pounds. It has a rustproof, metallic-wrinkle finish in a variety of colors. Circle No. 120

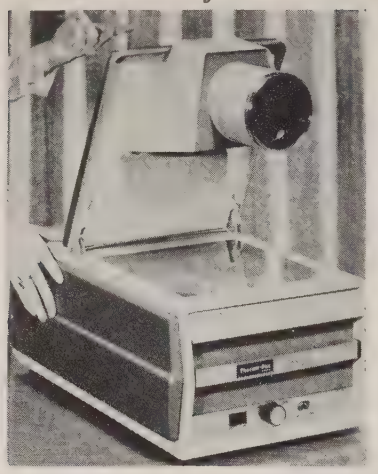
Accessory Line

The Counter Height Panel Storage Unit (shown above) is part of a new line of data processing accessory equipment introduced by The General Fireproofing Co. The line is designed to meet filing and storage needs created by business automation systems. Equipment provides specifically designed housing, storage and transportation for cards, control panels and tape reels with efficiency and protection. Anodized aluminum shelves are used on both the card tray trucks and counter height control units. Five sizes of control panels can be housed horizontally or vertically in multiple combinations. Circle No. 114

Phone Amplifier

Speak-R-Phone is an electronic device which amplifies two-way telephone conversations through a loudspeaker so both hands may be free during a telephone conversation. The self-contained unit is fully transistorized and should operate for over a year on a small battery. It requires no wires or connections to the telephone. It turns on automatically when the telephone handset is placed on it. Hands are free for notes or taking dictation. Volume is adjustable and may be turned up for use as a conference telephone. The unit is distributed by the Varicon Corp. Circle No. 123

Overhead Projector

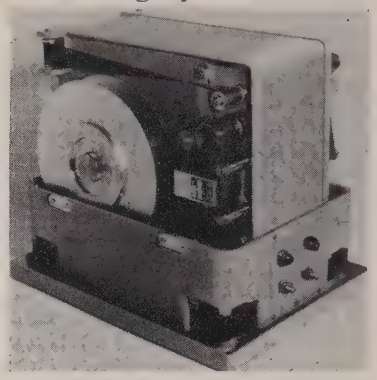


An overhead projector announced by Minnesota Mining and Mfg. Co. features complete portability. The projector is one of a series of new developments supplementing the existing "Thermo-Fax" visual communications products. Also announced were an extra quality line of positive, negative and color projection transparency films. The portable projector unit folds into a single, self-contained unit and is quickly set up. Circle No. 116

Dialer

Dialaphone, an automatic telephone dialer, has been announced by Perini Corp. The user locates the name of the party to be called on the dialer's instrument directory tape and then pushes a button. The call is quickly, automatically and accurately made. Telephone directory and hand dialing are eliminated for the frequently-called numbers on the dialer's directory. Names appear on a typed and organized tape included with the instrument. Dialaphone director tape can accommodate up to 850 names and numbers. Circle No. 112

Recording System

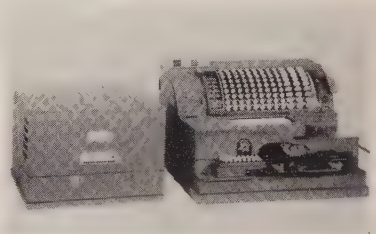


A portable digital recording system designed for unattended data acquisition over long periods of time has been introduced by Minneapolis-Honeywell's Industrial Systems division. Completely transistorized, the Type 6150 Incremental Digital Recording System acquires asynchronous data by a tape stepping method. At 30 steps per second (200 steps per inch of tape), 38 hours of continuous recording can be handled on one reel of tape. Compatible with most computers, it can record machinery vibrations and be used in mining operations. Circle No. 107

Small, High-Speed Offset Printing Press

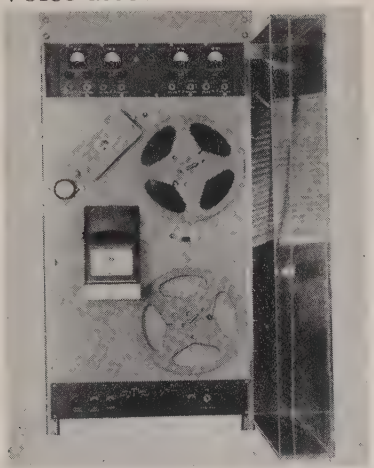
Davidson Corp., subsidiary of Mergenthaler Linotype Co., has announced a small high-speed offset printing press for office or in-plant purposes. The "Dualith 500" features ease of operation with the few controls located to facilitate fast change-over from one job to another. Davidson's two-cylinder basic design has been retained with its ability to produce printing quality on a wide range of light and heavy paper stocks in sizes up to 11 x 17-in. Either metal or paper master plates may be used. The "chain delivery system" which assures proper stripping and positive delivery of reproduced sheets is standard equipment. Increased ink fountain capacity and increased paper capacity in both feeder and delivery mechanisms have been provided. The machine will print two sides of a sheet simultaneously, one by offset lithography and the other by direct lithography. It will do dry offset printing for long runs and embossing. Circle No. 106

Post-A-Matic



The Series N2070 Post-a-matic is an intercoupler for National Cash Register Class 2000 window posting machines used in mechanized bank deposit accounting systems. The Post-a-matic was specifically designed by Systematics, division of General Instrument Corp. as an economical way to automate existing window posting equipment for mechanized accounting operations by automatically preparing a punched tape record of transactions put through the NCR machine. The Series N2070 consists of an electromechanical sensing device, a tape punch which measures approximately 17 x 12 x 12-in., and a small indicator unit 1½-in. high which mounts on top of the NCR machine. Circle No. 128

Voice Recorder



A recorder introduced by the Westrex Co., a division of Litton Industries, can be actuated by the sound of a voice and automatically stamps the time and date on magnetic tape. The Type RA-1651 signal-actuated voice recorder was designed for voice communications systems that must maintain and complete an accurate message log. The unit can operate continuously for 25½ hours without a change of reels. Circle No. 124

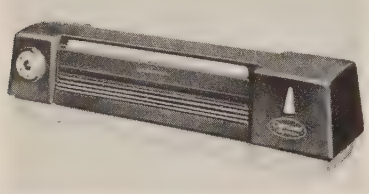
Filing Units

A series of shelf filing units have been introduced by Visi-Shelf File, Inc. Made in three series, units are available in 30 or 36-in. widths: The "D" Series are designed for record protection with drop doors (shown above). The "O" Series offers maximum filing space in minimum floor area. The "E" Series is economical for filing letter or legal-size documents. Circle No. 125

Compression Shredder

Utilizing an all-steel compression roller in the feed system, the Model 16-B Compression-Shredder, introduced by Industrial Shredder & Cutter Co., automatically flattens bulky materials for introduction to the shredder knives. It is furnished with a conveyor feed and provides a capacity to 1,500 pounds per hour of crumpled paper and light cartons. It is recommended for in-process shredding of all types of paper, leather, tobacco, gasket materials, metal foils and most plastics prior to additional processing, re-use baling or disposal. For automatic removal in large offices, the Model 16-B accepts the entire contents of waste basket, including paper clips, pins, cups, boxes and paper. Circle No. 141

Large Photocopying



A new photocopier designed for copying oversize originals up to 18 inches wide and by any length has been introduced by Copease Corp. Called Champion 18, it is for copying large drawings, blueprints, plans, charts, ledger sheets, 16-column paper and the like. Extra width enables two operators to use the machine simultaneously on eight and one-half by 11 inch copies, doubling production. White copies of any original printed or written in ink, pencil or pen are possible. Circle No. 142

HOW PHILCO'S KEEPS

PHILCO'S 8-STUB TICKET — shown actual size — provides 5 sources of data for automatic processing of Daily Reports of: Production Count by Model and Type, Production vs. Warehouse Receipts, Warehouse Inventory by Model and Location, Shipments by Model, Relief of Inventory and Sales by Model. The other three stubs, permanently attached to each set and its carton, make identification quick, easy and accurate.

NIQUE CONTROL SYSTEM
3% CLOSER TRACK OF TV SETS

THE HEART OF PHILCO'S SYSTEM is the Finished Goods Control Center, directed by Walter Wagg. Here, large quantities of tickets are processed by Dennison Print-Punch Machines to provide the multiple checks which keep close tabs on Philco TV sets. Here, too, stubs are counted and matched when returned from production, warehousing and shipping departments.

EACH STUB TELLS THE TRUTH! From production through shipping and everywhere in between, the disciplined removal and matching of Dennison Print-Punch Ticket stubs compiles an accurate history of each TV set's movement and location.

"Lost" TV sets used to be a Philco problem. "Paper losses" were not uncommon. They were caused by misprinted, mislaid or misread tags. Since 1956, however, all that has been changed. Annual inventory losses have been reduced by 93% to 96% . . . thanks to a Dennison Print-Punch System.

Now . . . accurate finished goods control is automatic! Production receives its daily supply of 8-stub Print-Punch tickets. Three stubs remain attached to each set and its carton and identify it until sold at retail. The other five stubs, removed at pre-determined points, are automatically processed to provide an accurate history of the set's movement and location. According to Walter Wagg, in charge of the system since its start, "Results are excellent . . . errors are few and easily corrected . . . inventory control is very reliable."

For complete details about Philco's system . . . and other cost-cutting Dennison Print-Punch applications . . . write for our fact-packed brochure. Or, contact the Dennison sales office nearest you.

Dennison

Helping you compete more effectively

FRAMINGHAM, MASSACHUSETTS

For More Information Circle Reader Service Card No. 175

Copies On Request

Information Retrieval—A 20-page brochure describes the operational characteristics and components of the Magnacard electronic data handling and retrieval system and is available from Magnavox Research Laboratories. Circle No. 131

TAPE—McDonnell Electronic Equipment Div. describes its Tape Automatic Preparation Equipment (TAPE) in a bulletin from the corporation. Circle No. 132

Tape Equipment—The complete line and specifications of Monarch Metal Products, Inc., is available in a booklet called "Magnetic Tape Storage and Handling Equipment by Monarch." Circle No. 133

EASY—A brochure describing Minneapolis-Honeywell's Electronic Data Processing division's EASY (Efficient Assembly System) automatic programming aid for the Honeywell 400 computer system has been released. Circle No. 135

Duplo Films—A four-page folder is available from the Gavaert Co. of America, Inc., describing the use of Duplo Films in microfilming and filing. Circle No. 136

Peripheral System—Four colorful pamphlets on the new Philco 2000 peripheral computer system cover the subjects of asynchronous computers, linear programming system, matrix operations and sort operations. Circle No. 137

EDP System—The Series 900 Electronic Data Processing System is described in a booklet from the manufacturer, Addressograph-Multigraph Corp. Circle No. 138

Typesetting—A 12-page booklet describes American Type Founders' new photo-mechanical system for rapid, low-cost composition of text and tabular material. Circle No. 139

Storage and Retrieval—A 10-page folder describing the recently introduced FileSearch automated system for information storage and retrieval is available from FMA, Inc. Circle No. 140

NEWS

Valley National Adopts 'Total Automation'

Valley National's sorter will read information off 25,000 plastic jackets an hour, sort checks into 26 pre-programmed groups.

The first bank to have a totally-automated system for processing both transit and "on-us" items (dividend checks, payroll accounts, etc.) is Valley National Bank, Phoenix, where a centrally-located Operations Center handles up to 400,000 items a day, serving 200,000 bank customers in 27 branch offices.

Carl Bimson, president of Valley National Bank and of the American Banking Assn., says checks are handled in three basic operations:

1. While a keyboard operator records routing information on a magnetic strip on top a transparent plastic jacket, the encoder automatically places checks inside.

2. At a rate of 25,000 an hour, the prime sorter (see photo) separates random-order jacketed documents into 26 pre-selected, pre-programmed groups.

3. The lister prints the necessary cash letter, unjackets and stacks the documents in the order of their appearance on the listing, counts the number of jacketed documents being listed, and performs an electronic validity check on the input data.

The Valley National system, custom-designed by Intelex Systems Div., International Telephone and Telegraph Corp., requires no special inks and documents need not be a uniform size or shape. Delivery of a General Electric 210 computer this month will complete the bank's installation, taking care of the final bookkeeping, such as depositors' records, loan transactions and other account records.

Valley Nation's huge processing center covers 32,000 sq. ft.

Business Show Cancelled

Management and BUSINESS AUTOMATION has received affirmation from the Office Executives Assn. of New York that the 50-year-old National Business Show will not be held in 1961. OEA has sponsored the event since 1949.

According to Lawrence W. Lynett, president of the OEA, "The show has been operating in a climate of decreasing interest and success in recent years. Apparently, its format no longer serves the needs of the business community and its members."

Lynett expressed a desire to regroup efforts and resources to concentrate on new membership services. Immediate plans are under way for a seminar and an exposition along divisional, rather than all-purpose, lines. Such a show reportedly is being considered for 1962.

Offer 'Package' Programs To Small Businesses

The National Cash Register Co. has announced a series of new "packaged" programs which will provide low-cost electronic data processing services for companies without computers of their own.

The services will be available at three newly-opened Data Processing Centers in New York, Dayton and suburban Los Angeles.

T. R. Bitterly, supervisor of the centers, says each of the three will utilize the large-scale NCR 304 electronic processing system.

"Now, processing facilities are as close to the average business as the mailbox," says Bitterly. "Each NCR package program is built around the use of easily-mailed punched paper tape, which is the basic input medium. Tapes are created automatically by an inexpensive NCR tape recorder, which can be used with cash registers, adding machines and accounting and bookkeeping machines. Punched cards also can be processed."

Information Congress To Be Held In Munich

The Second International Congress on Information Processing will be held in Munich, Germany, Aug. 27 to Sept. 1, 1962. It is organized by the International Federation of Information Processing Societies which in this country include the American Institute of Electrical Engineers, Institute of Radio Engineers and the Association for Computing Machinery.

Papers will be accepted on such subjects as: business information processing, storage and retrieval of information, language translation and advanced computer techniques. Categories covered will be in the light of applications of digital computers, programming, systems design, equipment and components. Abstracts of 500-1000 words should be sent to, and more information obtained from, Dr. E. L. Harder, Westinghouse Electric Corp., East Pittsburgh, Pa., by Sept. 15, 1961.

A. C. Nielsen Installs New EDP System

A. C. Nielsen Co., international marketing research firm, will install a $1.2 million Honeywell 800 electronic computer in its Chicago offices next fall.

The system, manufactured by Minneapolis-Honeywell's Electronic Data Processing division, will be used to handle data appearing in detailed marketing reports prepared for Nielsen clients. (See Management and BUSINESS AUTOMATION, March 1961, p. 28.) C. V. Stewart, vice president in charge of production for Nielsen's Retail Index Div., explained, "Installation of the Honeywell 800 is part of our program to meet the requirements of an expanding business, as well as to improve the speed and accuracy of reporting."

Stewart said the Honeywell 800 will compile and analyze Nielsen's statistics on sales to consumers, purchases by retailers and retail store inventories by territory and by store size and type. This information, together with data on retail advertising and point-of-sale displays, enables Nielsen clients to plan and execute more efficient marketing programs, he explained.

He added that the company will continue to operate a number of smaller computers at its production offices in Green Bay and Fond du Lac, Wis.

Stewart said the computer will handle up to eight independent programs simultaneously. Nielsen performs about 250 million statistical operations daily.

Bibby Addresses Univac Users Group

The recession has accelerated computer activity, and computer business is good. These remarks were made by Dause L. Bibby, president of the Remington Rand Div. of Sperry Rand Corp., before the Univac Users Association Conference in Los Angeles on April 13.

Reviewing Remington Rand progress during the past two years, Bibby described the division's short term and long range objectives. The short term objective—reorganization of the division into a decentralized, product-oriented organization—was accomplished in his first year with the company.

The long range objectives include acceleration of new product development, and improvement of the quality and performance of service to customers. "Computers are beginning to look strangely alike," Bibby said, and noted that what will attract customers in the future will be the marketing support staff, and the quality of services offered.

Noting that the 50's have been termed the era of computers, and the 60's the era of communications, Bibby commented that "the computer is intended functionally to be a real-time device—its destiny is as a source of information. It was not designed to save paper—although it has proven very good at doing this."

One of the most important contributions of computers in the future, Bibby feels, will be in providing more timely distribution information to manufacturers. Lack of information about distribution, says Bibby, has been one of the causes of recession in this country.

Merchandise National Using Advanced System

Merchandise National Bank of Chicago has announced that its General Electric 210 computer system is now operational. The system completes daily deposit accounting involving up to 30,000 transactions in less than five hours.

Details of the system were given by Kenneth K. Du Vall, chairman of the board, and Harry F. Tubergen Jr., executive vice president, at the April 24 opening.

Du Vall said the computer incorporates electronic reading of magnetic printing direct from customers' checks and deposit tickets onto magnetic tapes for automatic computing and record preparation.

Tubergen pointed out that one of the bank's objectives has been "to freeze our costs at the level of 1957. However, this is a tangential benefit. Primary purpose of the installation is to provide customers with the world's best deposit accounting service."

Merchandise National guarantees that no one will be "put out of a job" because of the installation. The reduced bookkeeping staff has been assured of another position within the bank or a comparable job. This is the second bank in the country to contract for a magnetic ink character recognition computer system.

Eastern Joint Computer Conference Asks For Papers

June 20 is the deadline for the submission of papers to be presented at the 1961 Eastern Joint Computer Conference, December 12-14, Washington, D. C.

Theme for this year's meeting will be: "Computers—Key to Total Systems Control."

In issuing the call for papers, Dr. Jack Moshman, Conference Committee chairman, announced the appointment of Bruce Oldfield, IBM Federal Systems Div., as chairman of the Program Committee; Herbert Koller, U. S. Patent Office, as conference secretary.

Other committees: Finance, Solomon Rosenthal; Public Relations, Zeke Seligsohn; Proceedings, Paul Howerton; Hotel, Henry Forrest.

Aetna Finance Selects System for 142 Branches

Aetna Finance Co., nationwide consumer credit firm with headquarters in St. Louis, has agreed to lease an RCA 301 electronic data processing system from Radio Corp. of America. The system will handle paperwork for all of Aetna's 142 branch offices.

David Corwin, Aetna secretary-treasurer, says the RCA 301 initially will perform three basic functions: (1) provide and maintain a duplicate record in the home office of pertinent information on all open accounts in each branch; (2) electronically prepare monthly balance sheets and profit and loss statements for all branches and for the company as a whole; and (3) perform daily bookkeeping operations.

The company eventually plans to broaden its computer operations to include payroll preparation, monthly statistical summaries and analyses, and other types of data.

Last year, Aetna's 200,000 transactions involved $90 million.

IBM Dedicates New Research Center

Main entrance of new IBM Thomas J. Watson Research Center was designed by architect Eero Saarinen. Center was dedicated recently near New York City.

Stockholders attending an annual convention of International Business Machines Corp. recently met outside New York City for the first time. There was a special reason: the dedication, by New York Governor Nelson Rockefeller and IBM president Thomas J. Watson, Jr., of the company's new $10.7 million research center.

Named for Watson's father, a former president of IBM also, the research center stands on a 240-acre site in suburban Westchester County, 40 miles north of Gotham. It is a tri-level, crescent-shaped, glass-and-aluminum structure featuring 459,000-sq. ft. of area, half a mile of glass-walled corridors, a library, an auditorium, a carpeted reading room, an ultra-plush visitors' reception area, classrooms, a computing center, and ceiling showers in laboratories where scientists will be working with dangerous chemicals.

Designed by world-famous, Finnish-born Eero Saarinen, the building will house 1,500 scientists and supporting personnel who will work on broad research in the physical sciences, the life sciences, mathematics and advanced engineering.

Standing on the north slope of a grassy hill near the Taconic State Parkway, the Thomas J. Watson Research Center is the world's largest research center devoted to the study of computer science. IBM spends nearly $90 million a year on research and development.

Borden Consolidates Secondary Warehouses

To effect more efficient distribution of its products, provide retailers with improved services and increase profits, the Borden Foods Co. is consolidating 136 secondary warehouses across the nation into 14 to 18 central distribution centers.

The company is utilizing modern data processing equipment (control center being Friden Corp.'s "Computyper") at its distribution centers.

Retailers, who previously were served from one or more of the company's secondary warehouses, by the end of 1961 will be able to obtain the complete Borden line from a single source.

Crowds Reflect Boom At OEMI Exposition

Over 53,000 business management executives toured the week-long Business Equipment Exposition, held April 17-21 in the New York Coliseum.

Rudolph Lang, managing director of the show exhibits, said that the event was an overwhelming success, characterized by unusually heavy off-the-floor exhibitor sales.

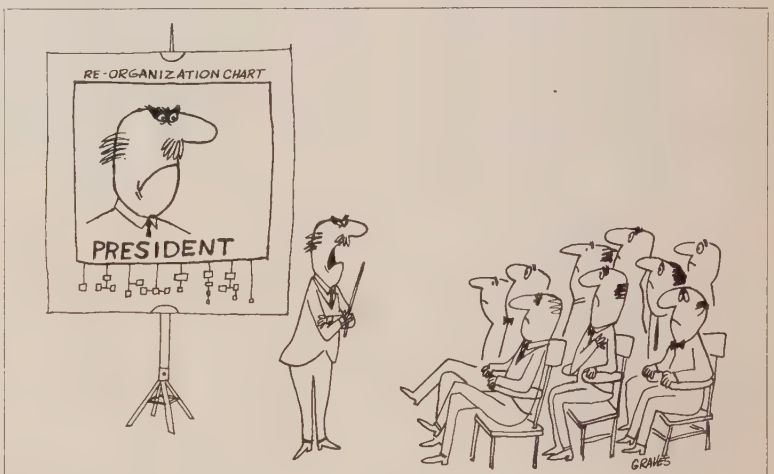
Fortune P. Ryan, president of Royal McBee Corp., commented: "Sales in the $4 billion office equipment industry will reflect not only the general rise in business volume, but also the expanding effort of business and industry to improve the efficiency of their operations."

Anderson

Powell

During the exposition, Harry C. Anderson was elected president of the institute and of its subsidiary, Office Equipment Manufacturers' Exhibits, Inc. Lloyd M. Powell, president of Dictaphone Corp., becomes chairman of the board.

The fourth annual Business Equipment Exposition will be held in Chicago, April 9-13, 1962.



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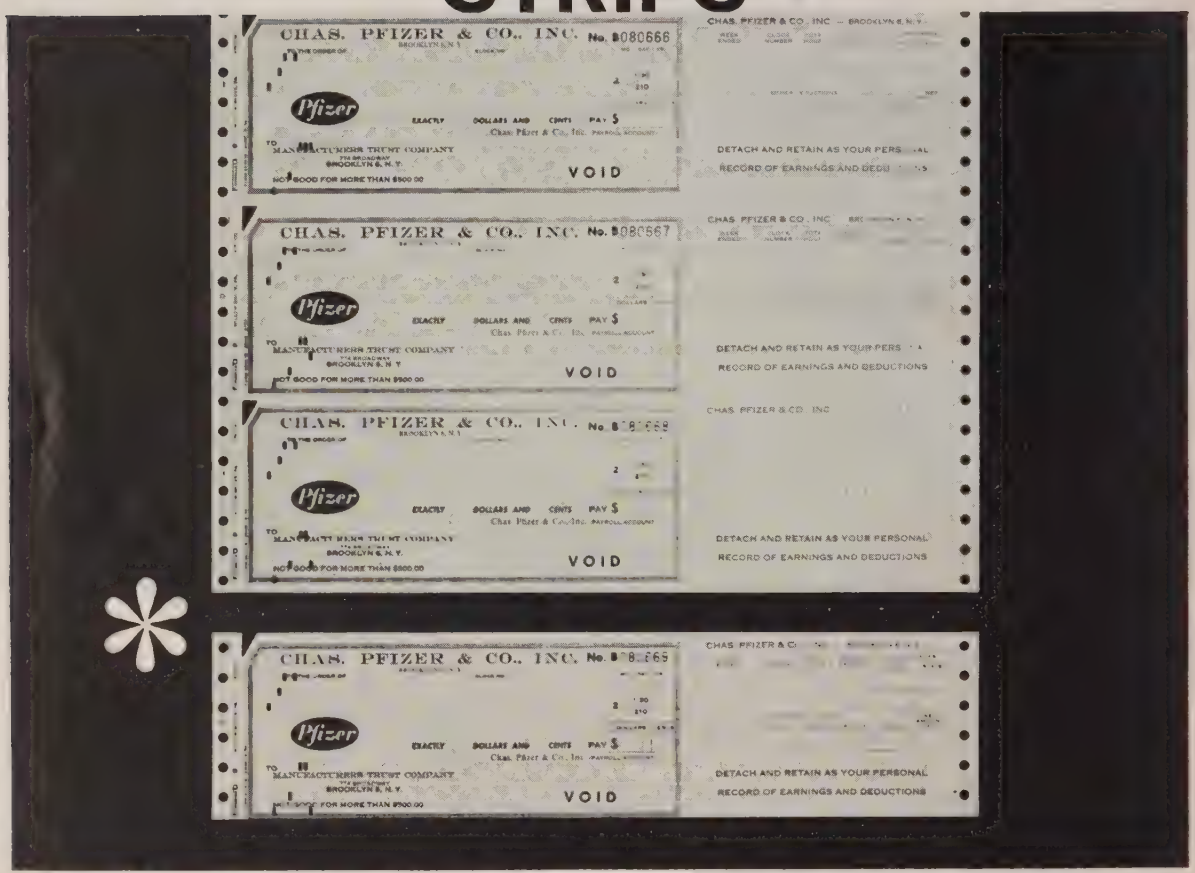

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Book Reviews

Cost Reduction Guide For Manufacturing Management

Written and published by E. E. Wyatt and H. C. Morse. Distributed by Hitchcock Publishing Co., Wheaton, Ill. $18.00.

It would seem that the authors, consultants specializing in cost reduction, have just written themselves out of a job by preparing this valuable book.

Covered are the field of electronic data processing (how to purchase and use), financial and management controls, insurance, marketing, industrial relations, industrial and plant engineering, systems and procedures, quality control, purchasing and a host of other functions that concern business and manufacturing management.

Much of the material is based on case histories of some 40 companies continuing cost reduction programs. It is written in non-technical language, offers step by step instructions for starting and carrying out complete programs in cutting costs and generally improve operations and, finally, includes 1,200 cost related questions enabling any company to evaluate its entire operation. There are 200 tested waste prevention ideas, 100 examples of what projects cut costs, the directives a program requires, how a program should be organized, the qualifications of a cost reduction staff and the suggestion of a solution to the "impossible"—how to promote cost reduction among employes.

Modern Production Management

By Elwood S. Buffa. Published by John Wiley & Sons, Inc., 440 Park Ave. S., New York City 16. $10.25.

Another text book containing a great wealth of practical information for the modern business practitioner is this volume on production control techniques.

The book is unusually comprehensive starting from a history of management decision making and the production function. It analyzes costs and methods of production and simulation, shows design of production systems and tells how to operate and control production systems.

No detail on the subject is overlooked including a full chapter on computers and automation in relation to production management.

Guide to Microforms in Print—1961

Edited by A. J. Diaz. Published by Microcard Editions, Inc., 901 26th St. N.W., Washington 7, D. C. $4.00.
A listing of available U. S. books and journals that have been reduced on "microform" cards.

Ninth Annual Meeting Proceedings

Published by the Standards Engineers Society, 1025 Connecticut Ave. N.W., Washington 6, D. C. Members $4.00, non-members $5.00.
Details and papers presented at the SES meeting in Pittsburgh, Sept. 26-28, 1960 include a paper on computers and standardization.

New Survey On Paperwork Problems

IN AN ATTEMPT to gain a new insight into rising office costs and the true extent of management's ever-increasing paperwork problem, Charles Bruning Co., Inc., Mt. Prospect, Ill., recently surveyed office managers of the nation's 500 leading business firms.

Many of the answers as to how these problems are, or should be, approached are revealed in the following excerpts from the Bruning survey:

Rising costs of office procedures are causing management deep concern. Please name what you consider to be the principal problem areas, in the order of their importance.

The principal problem area, according to 55.5 percent of the respondents, is that of systems and procedures, although data processing (46.1 percent) and inefficient use of clerical help (41.2 percent) followed close behind.

Relatively few considered record maintenance (12.6 percent) or misuse or waste of office equipment (3.8 percent) to be of equal significance.

How do you feel about the present status of your company's paperwork methods?

None of the respondents was completely satisfied as to the efficiency of his company's handling of paperwork. Less than 10 percent were "reasonably satisfied."

Among those dissatisfied, more than 60 percent indicated that there is room for improvement. Twenty-six percent regarded the need for improvement as "considerable" and indicated that there are a number of areas in which problems have to be resolved. More than 12 percent are concerned enough to make immediate changes in their firm's methods of handling paperwork.

In which areas do you feel there is room for improvement in paperwork handling?

Production control (66 percent) and accounting (64 percent) ranked foremost as areas in which there is room for improvement. However, sales records (56 percent), purchasing-receiving (55 percent), general clerical (54 percent), filing and file disposal (51 percent), order processing (48 percent), and billing (42 percent) also were cited as prime trouble spots.

Scheduling, planning, work measurement and standards, and engineering (each with 3.2 percent) received only cursory mention.

Is the paperwork problem a matter of immediate concern to management?

Nearly 70 percent of the respondents to the Bruning survey indicated that this problem is of immediate concern to their company management.

What improvements in office systems do you plan to implement within the next year?

Study and action taken toward the simplification of paperwork procedures evidently will be carried on at a brisk pace this year. Emphasis seems to be on continuing consideration and installation of automatic office equipment and systems.

In response to the survey, 47.1 percent said that they will continue to study paperwork control. They will aim at revamping procedures with a particular view to consolidation, reduction and elimination of paperwork functions. Another 28.7 percent plan to install automatic office equipment, in many cases supplementing present equipment; 19.8 percent will investigate or adopt new systems and procedures; and 10.1 percent will concentrate on forms coordination programs and forms design and control.

If you plan to consult (or have consulted) outside counsel, which types have you considered?

A preponderance of respondents indicated that they would depend primarily on suppliers of office and systems equipment (54.3 percent) or management consulting organizations (48.1 percent) for counsel in revising paperwork procedures. Many of the respondents would turn to more than one outside source for help.

A total of 27.8 percent of the respondents said that they would seek help from business associates, friends or acquaintances, and 24.2 percent said that would ask systems departments of accounting firms for advice.

Which area presents the greatest challenge for future development?

More than 60 percent of the respondents felt the greatest challenge lies in providing more workable procedures. Specifically, they pinpointed information retrieval and control (66.1 percent) and the creation and design of new forms (28.6 percent) as the two most challenging.

If you were to consult suppliers of tabulating, card punch, electronic computers, and/or electric business machines, which would you be most likely to call?

In order of preference, respondents answered this question as follows:

International Business Machine Corp. (87.5 percent), National Cash Register (42.7 percent), Burroughs Adding Machine Co. (40.8 percent), Sperry Rand Corp. (38.7 percent), Friden Calculating Machine Co. (37.9 percent), RCA (30.8 percent), Minneapolis-Honeywell (11.9 percent), Royal McBee (6.7 percent) and Smith-Corona Marchant (5.2 percent).

If you were to consult suppliers of office copying machines and other reproduction devices, which would you be most likely to call?

Addressograph-Multigraph (61.1 percent), Haloid Xerox, Inc. (52.5 percent), Minnesota Mining & Mfg. Co. (37.3 percent), Charles Bruning Co. (31.2 percent), Ditto, Inc. (30.5 percent), A. B. Dick Co. (30.5 percent), Eastman Kodak (28.8 percent), Ozalid Div. of General Aniline (20.3 percent) and American Photocopy Co. (15.2 percent).

If you have a microfilm system,

or if you were to consider microfilm as a solution to a problem, which companies would you be most likely to consult?

Eastman Kodak (47.8 percent), Haloid Xerox (27.1 percent), Minnesota Mining & Mfg. Co. (19.8 percent), Remington Rand (10.1 percent) and Charles Bruning Co. (5.7 percent).

If you already have made changes in paperwork procedures which have resulted in savings, how much would you estimate they have been worth?

In general, this question proved difficult to answer. In some cases, even a rough estimate could not be obtained, since no cost studies had been conducted. However, those responding to this question indicated that company savings had amounted to $10,000 or less in 3.4 percent of the cases; between $10,000 and $20,000 in 3.4 percent; $20,000 to $50,000, 10.2 percent; $100,000 to $200,000, 11.9 percent; $200,000 to $500,000, 5.1 percent; and over $1 million, 1.7 percent.

Answering in percentages of total annual office expense, respondents said their new procedures had saved up to 5 percent in 6.8 percent of the cases; 5 to 10 percent in 8.5 percent of the cases; 10 to 20 percent, 5.2 percent; and 20 to 30 percent, 5.4 percent.

The importance of intangible savings also must be taken into consideration in estimating the value of improved procedures.

What benefits, other than cost savings, have you found important from these changes?

In answer to this question, 44.9 percent said they had achieved better customer service; 41.8 percent, increased accuracy; and 38.7 percent, improved communications, recording more complete information and making it more quickly available.

Another 15.2 percent said they'd achieved better over-all control of operations; 12.5 percent, faster and more complete flow of information to management; and 14.8 percent, better co-ordination and service internally and with branch offices.

If you feel there is room for improvement, what percentage of your total annual office overhead could be eliminated through installation of more efficient systems and procedures?

Not all of the respondents wished to venture a guess in this department, but 6.7 percent said that they thought up to 10 percent of their annual office overhead could be eliminated in this manner; 19.7 percent said 10 to 20 percent could be; 16.9 percent, 20 to 30 percent; and 6.7 percent, 30 percent or more.

While most benefits seem to accrue from the installation and adoption of electronic data processing and improved systems and procedures, the Bruning survey would seem to indicate that isolated, autonomous corrective measures cannot be pinpointed as "the solution" to business paperwork problems. The job must entail an overall, coordinated attack on the specific problems of the individual organization.

Manufacturers and suppliers of office equipment must carry a major responsibility in this area. Their potential is emphasized by the fact that most of the survey respondents tend to look toward these sources for assistance — more so, in fact, than to any other counsel.

Manufacturers must de-emphasize "hardware selling" and concentrate on an overall "integrated" approach to the paperwork problem.

Individual suggestions noted on the survey forms would seem to indicate the following basic rules for reducing office costs through the control of paperwork:

1. Inform management and enlist its support in making innovations.
2. Centralize systems and procedures functions, and place the responsibility for new developments in this area at the management level.
3. Carry on an active resistance to "old guard" tradition, when necessary.
4. Set up definite objectives in each problem area.
5. Promote awareness and understanding on the part of employes when innovations are made, and show them the benefits to be derived from these changes. ■

Business Calendar

June 6-8 — Instrument Society of America Summer Instrument-Automation Conference and Exhibit, Royal York Hotel (c) and Queen Elizabeth Hall (e), Toronto, Ont., Canada. Contact: Wm. H. Kushnick, Executive Dir., ISA, 313 Sixth Ave., Pittsburgh 22.

June 13-16 — Cornell University Seminars in Industrial Engineering. Specialists from industry and university staff conduct nine seminars, including "Systems Simulation Using Digital Computers." Additional Information: J. W. Gavett, Seminars Coordinator, Upson Hall, Cornell Univ., Ithaca, N. Y.

June 28-30 — Tenth Anniversary Conference, National Machine Accountants Assn., Royal York Hotel, Toronto, Ont., Canada. More information: NMAA International Headquarters, 1750 West Central Rd., Mount Prospect, Ill.

August 22-25—Western Electronic Show and Convention, sponsored by the Institute of Radio Engineers and the Western Electronic Manufacturers Assn. will be held at the Cow Palace in San Francisco. More information may be obtained by writing: WESCON Business Office, 1435 S. LaCienega Blvd., Los Angeles.

September 5-8—Sixteenth National Conference of the Assn. for Computing Machinery and First Data Processing Exhibit, Statler-Hilton Hotel, Los Angeles. Contact: Benjamin F. Hardy Jr., Gen. Chairman, Litton Systems, 5500 Canoga Ave., Woodland Hills, Calif.

September 11-13—National Convention of the Assn. for Bank Audit, Control and Operation, Conrad Hilton Hotel, Chicago. Write: Jack Craddock, Dir. Public Relations, NABAC, 38 S. Dearborn St., Chicago 3.

September 28-29—Fourth Annual National Conference and Technical Exhibit of the American Production and Inventory and Control Society, Pick-Congress Hotel, Chicago. National Headquarters: 330 S. Wells St., Chicago 6.

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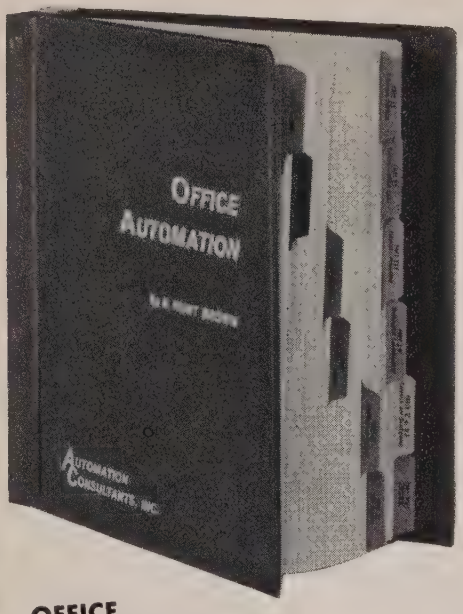

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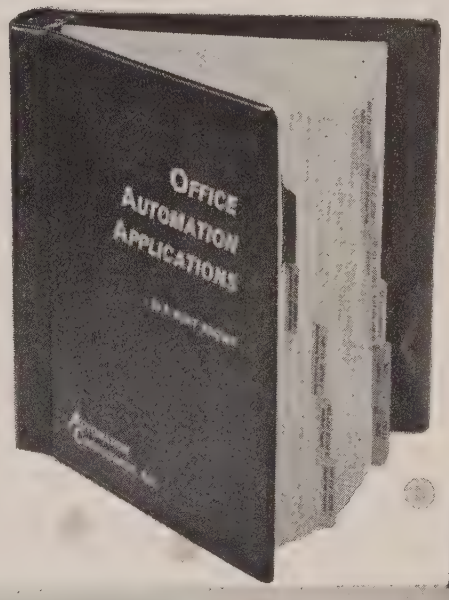

These references are the only loose-leaf services available devoted to electronic data processing and the full scope of automation in the office. The latest hardware and installations are emphasized with very little attention given to conventional punched card processes. A monthly updating subscription insures that each volume is completely up-to-date and can be relied upon as the basic, authoritative source of IDP/EDP information. Written in non-technical language, all material can be understood by executives in top or middle management.

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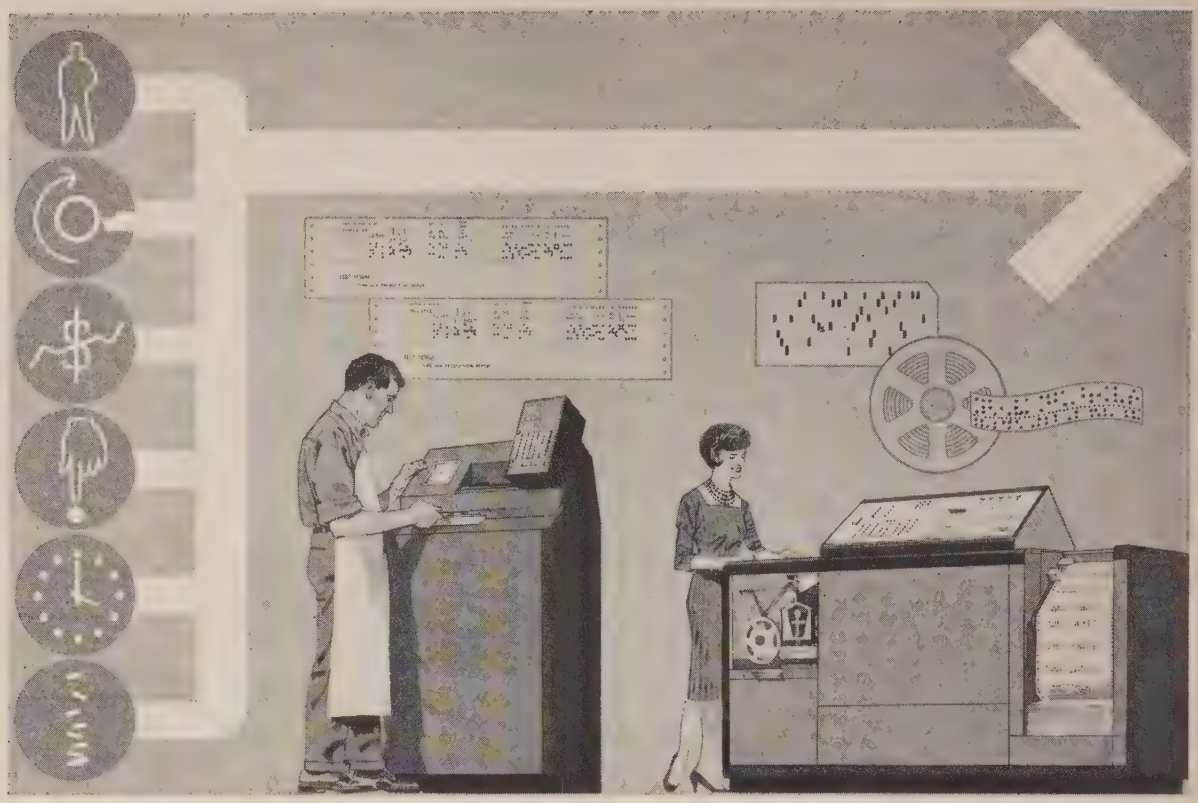

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Now, instead of the usual manual methods of recording information pertaining to labor distribution and production control, it is possible to gather and record it mechanically for conversion to punched tape, magnetic tape or punched cards for subsequent machine accounting.

Starting point is the original event (circles in above chart) concerning — man, operation, order, variable data, time and production.

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A copy of this coded form is next fed into the Stanomatic Reader-Translator which prepares the data for machine processing. (In companies with relatively small production volume, this job can be accomplished by manual key-punching of tabulating cards using the form prepared in the Stanrecorder as the source document.)

Source data pertaining to labor distribution and production control are automatically accumulated for fast, accurate, complete processing. But going farther, the Stanomatic System provides bonus advantages. The worker can have his own copy of each transaction he records. A complete, permanent chronological audit trail is provided by which every transaction can be quickly reconstructed. And management receives faster, more accurate, more comprehensive reports.

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ADVERTISERS' INDEX – JUNE, 1961

EDITORIAL

Our guest editorial is an excerpt from an advertised interview with Edward Swayduck, president of Local 1, Amalgamated Lithographers of America, and entitled "Automation? Absolutely!"

Eddie, it has been my understanding that unions are opposed to automation on the grounds that it reduces jobs for workers. What is your view?

Well, for 79 years now, the Amalgamated Lithographers of America has vigorously fostered technological development. We have found over these four generations that if the lithographic industry brings down product costs to the customer, more jobs are created for our members.

Can you give me some figures?

Certainly. In 1906, three men ran a hand-fed stone press that produced 800 sheets an hour. If I had gone into that plant 55 years ago and told the members that in 1961 there would be a lithographic press that would produce 11,000 sheets an hour in 10 colors on both sides, do you know what they would have told me? They would have said there would be only a handful of workers left—there'd be nobody in the industry! But what are the facts? As we progressed through that revolution of automation and technological development, our industry has grown by leaps and bounds. Lithography has become the fastest-growing method of reproduction in the graphic arts.

How has all this worked out for the union and its members?

About three years ago, the *Wall Street Journal* was checking facts for a front-page story based on a proposal I made before our international convention for a joint union-management automation research fund. The newspaper interviewed people from all over the industry. One New York plant owner told them that, because we had automated, his unit costs were identical with those of 1914. But in this same period, the benefits to our members have increased tremendously. In addition to higher wages, we have a 35-hour week, three weeks vacation, 10 paid holidays and the finest welfare and pension programs in the nation. And during those years, our membership has increased 1,000 percent, while the population of the country has gone up only 80 percent.

So automation has worked, and worked well, for both the industry and the union?

The facts speak for themselves. How could an industry absorb all those extra costs and stay in business competitively if the Amalgamated Lithographers of America had not worked with them for automation and technological development? In this way, we made the product less expensive and more attractive, and everyone is benefiting.

Do you think all unions should take a good hard look at automation and back it the way you have?

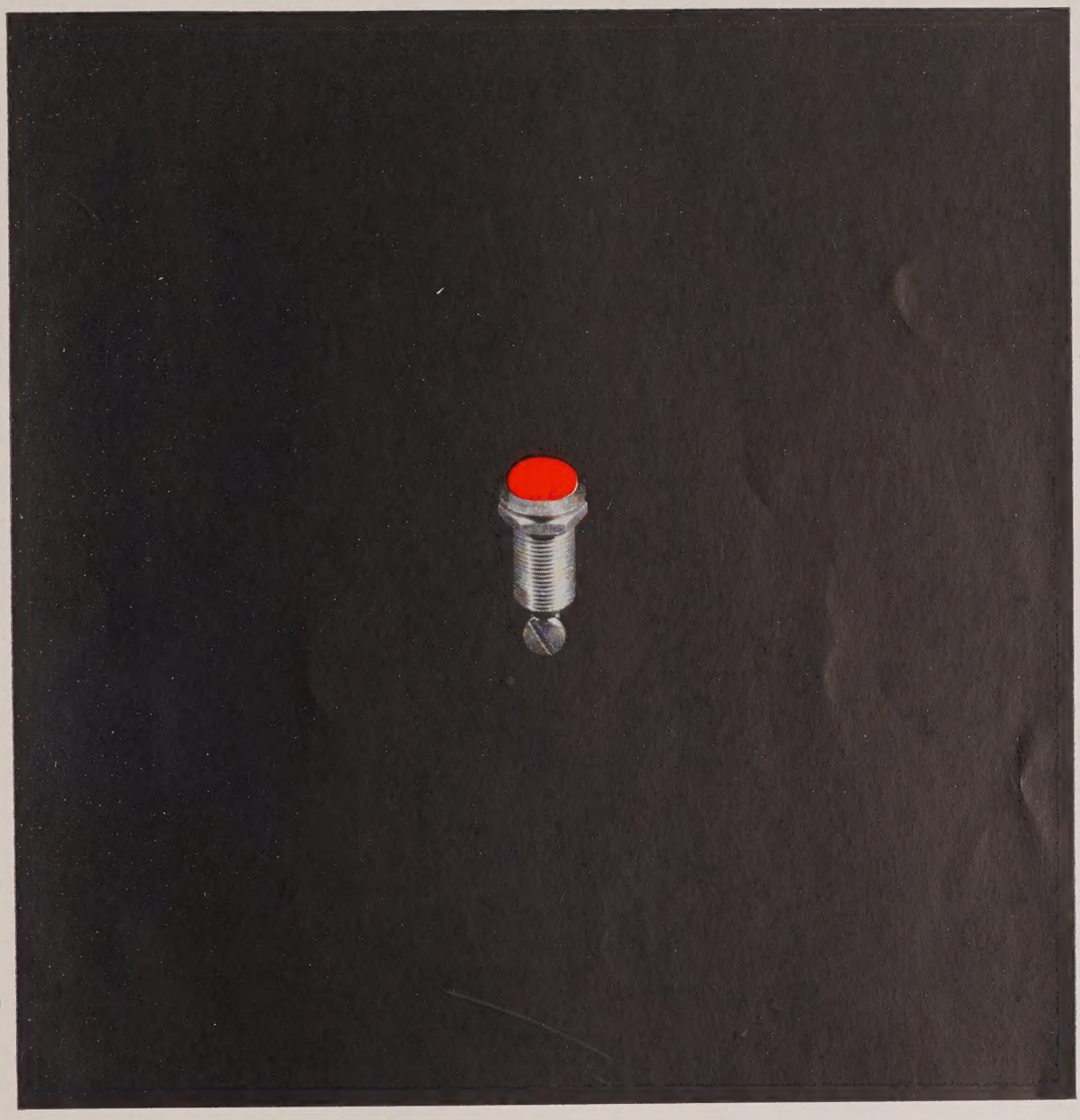
At last, some of them are. Here's an actual case history on one union: The president fought automation for years. The various benefits he demanded for his members made their contract a one-way deal. He kept driving the price of the product up, up, up. As a result, the major customers converted to an alternative way of doing the job, not for any meanness, but just because it made sense to do so. Naturally, the union's membership started to dwindle. Today, this man has only about 250,000 members out of what used to be 800,000. And today, he's one of the greatest advocates of automation and technological development. He's had to face up to the cold fact that he has to automate to save the jobs of the quarter of a million members he has left. That's the story, right across the country.

But it seems to me, Eddie, there are still a number of labor leaders who haven't come around to this viewpoint.

They haven't, but they're going to have to, sooner or later. In the past, labor officials lacked the political courage to tell their members: "This is good for you," because they had to live with it for two, three, four or five years before they showed results. They didn't have the courage to stand up to that kind of a barrage. But in industries where they did, the members have reaped the benefits.

Not only am I for automation—it's the history of our organization to be for it—but I'm convinced that other unions that are not for it are actually and literally underestimating their country. People might be momentarily displaced, but for that brief period, the economy would be able to take care of them. Then, as soon as the products were brought down in cost, the general business picture would be enhanced and the various industries would absorb everyone who was displaced. As I see it, it's the story of America.

When a buyer of lithography places his business in an ALA plant, he doesn't pay for featherbedding or obsolete processes.



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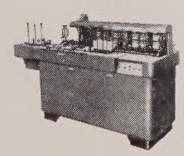

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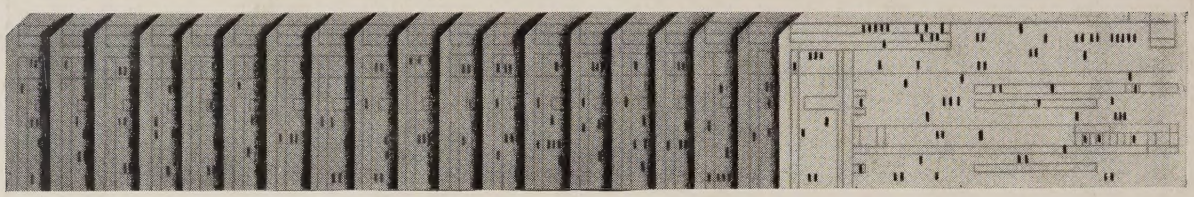

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The system is as flexible as the telephone network itself. The insurance company pays for telephone circuits only when using them, as for any branch-to-headquarters call. And Data-Phone takes up little more space than a standard typewriter.

• • •

Learn how high-speed, low-cost Data-Phone service can streamline your company's data processing. Just call your Bell Telephone Business Office and ask for a Communications Consultant. He'll bring you the complete story.

James P. Jacobs, President, Hardware Mutuals - Sentry Life insurance group, says:

"Our new data-processing technique—with the rapid communication of data made possible by Data-Phone—is benefiting our business in many important ways.

"It lets us collect the mass of information we need for management decisions almost instantly. It has cut the time needed for certain policy-handling functions from three days to three minutes. It is reducing our operating costs by over $1,000,000 a year and is helping us give our policyholders better service than ever before.

"Naturally, we're enthusiastic about it."

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